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JANUARY 12, 1953

STEEL

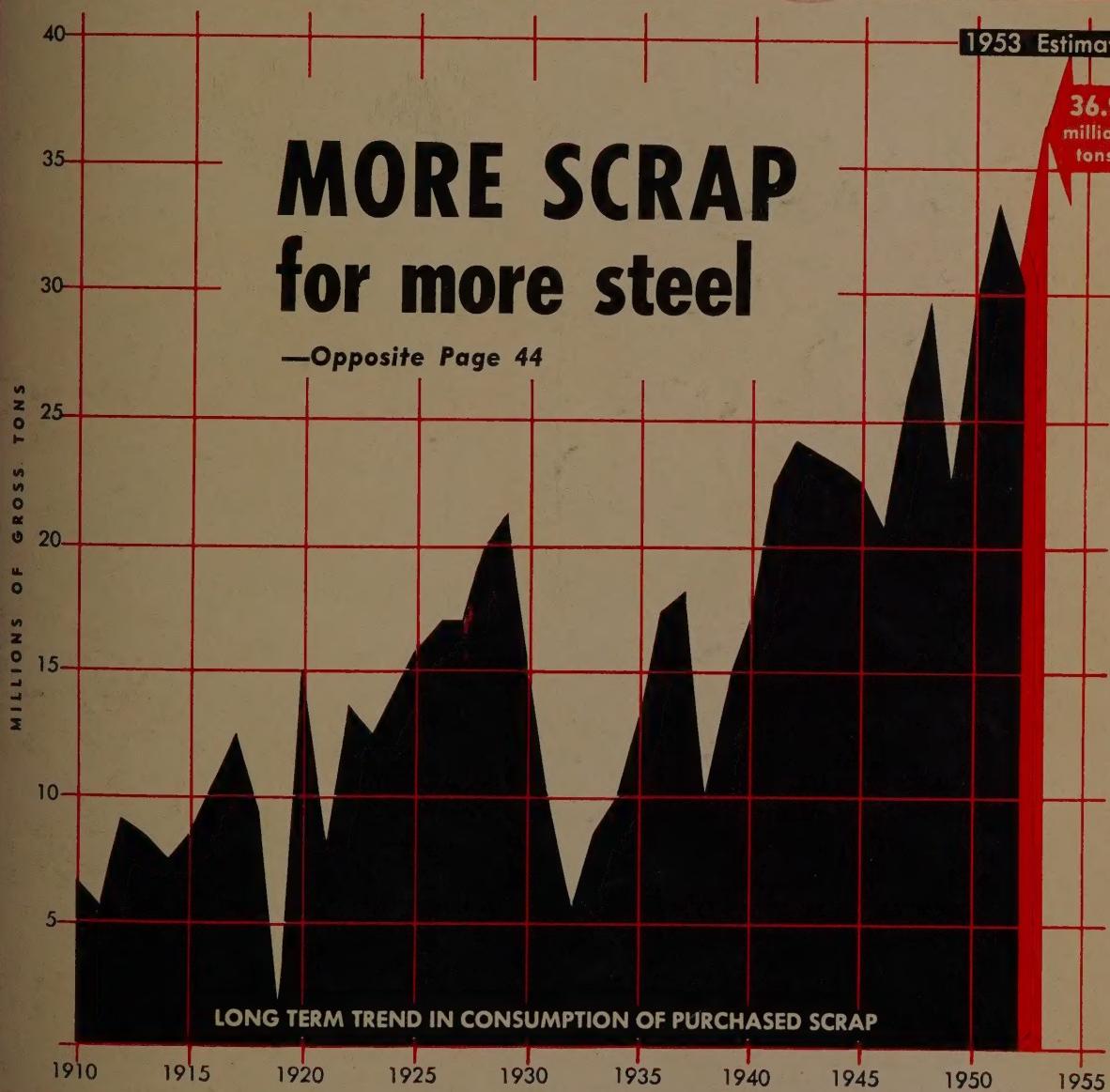
THE WEEKLY MAGAZINE OF METALWORKING

MORE SCRAP for more steel

—Opposite Page 44

1953 Estimate

36.9
million
tons

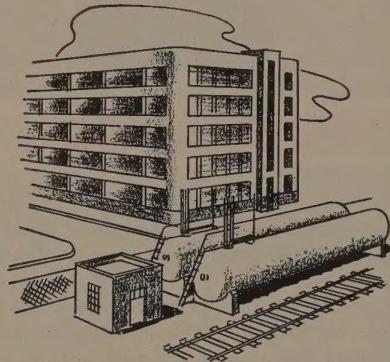




Philgas*

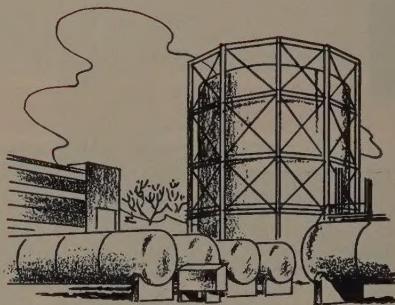
THE ALL-PURPOSE FUEL

For Industries



Philgas, a clean, high-quality LP-Gas, is being used by leading industries for heat treating, mold drying, core baking, ceramic firing and many other operations. Philgas butane-propane systems are automatic, cutting down on overhead while assuring constant furnace temperatures, atmospheres, and pressures.

For Utilities



Free from harmful contaminants, Philgas is used by many progressive utilities to augment supplies of natural or manufactured gas. Cleanliness, uniformity, constant pressures (high or low) and easy automatic operation make Philgas a *superior* product. It's America's largest selling brand of LP-Gas.

*Phillips 66 and Philgas are the Phillips Petroleum Company trademarks for its high quality propane-butane LP-Gas or bottled gas.

PHILLIPS PETROLEUM COMPANY

Sales Department

Bartlesville, Oklahoma

Offices located in Amarillo, Tex., Atlanta, Ga., Chicago, Ill., Denver, Colo., Des Moines, Ia., Pontiac, Mich., Indianapolis, Ind., Kansas City, Mo., Milwaukee, Wis., Minneapolis, Minn., New York, N. Y., Omaha, Nebr., Raleigh, N. C., St. Louis, Mo., Tulsa, Okla., Wichita, Kan.

Only B. F. Goodrich makes the grommet belts that cut costs 20 to 50%!

Save 3 ways! Investigate today!
Write or mail coupon

You save belt costs because belts last longer, save production costs because machines keep running with fewer interruptions, save maintenance costs because they need less attention.

Patented grommet belts by B. F. Goodrich represent the only basic change since invention of the V belt. They last 20 to 50 per cent longer, depending on service. (The more severe the service, the greater the increase over ordinary belts.) Grommet belts have more rubber; they're more flexible, give better grip, less slip.

What is a grommet?

Grommet is like a giant cable except it's *endless*—a cord loop built up winding heavy cord on itself. There is no overlapping cord *section* as in all ordinary belts. Most belt failures occur in these sections where cords overlap!

All cords put to work

Both of the two grommets and every cord of a grommet carry their share of

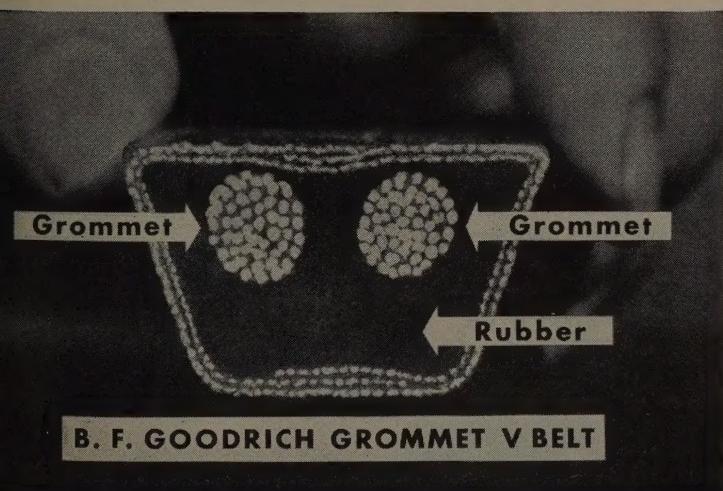
the load. In ordinary belts under high tension the center cords "dish" because tension is greater near the driving faces. Dished cords are doing less work, not pulling their share. Grommet belts have no center cords, there is no dishing—therefore much more strength in proportion to cord volume—and less stretch. Grommet belts stretch, on an average, only about one-third as much as ordinary belts.

Better grip, less slip

Grommet belts have more rubber in relation to belt size. Without any stiff overlap, they're more flexible, grip pulleys better. Size for size, grommet belts give $\frac{1}{3}$ more gripping power, pull heavier loads with a higher safety factor. Because there is less slip, there is also less surface wear.

Send for proof

Send the coupon for a set of reports telling users' experiences and showing actual installations where grommet belts outlasted all others. Some typical cases:



"...within a few days ordinary belts had stretched... After six months of 24-hour-a-day service BFG grommet belts haven't stretched at all..."

"Ordinary belts lasted only 5 or 6 weeks... B. F. Goodrich grommet belts are in their sixth month of service..."

"Previous belts suffered from shock loads, wore out fast... BFG grommet belts have been in service 2 years with no shut-downs..."

There are hundreds of cases like these.

They cost no more

BFG grommet belts cost not one cent more than others. The savings they make for you are clear profit. They are made in C, D and E sections. They are patented by B. F. Goodrich. No other V belt is a grommet belt (U. S. Patent No. 2,233,294).

Write, send the coupon or see your B. F. Goodrich distributor. (He will show you his "X-ray" belt that shows the grommet construction clearly.)

Grommet V-Belts
BY
B.F. Goodrich
FIRST IN RUBBER

The B. F. Goodrich Company
Dept. S-1
Akron, Ohio

- Send set of reports telling users' experiences and showing actual installations proving that B. F. Goodrich grommet belts outlast all others.
 Have distributor show me the "X-ray" belt that shows how B. F. Goodrich grommet belts are made.

Name _____

Firm Name _____

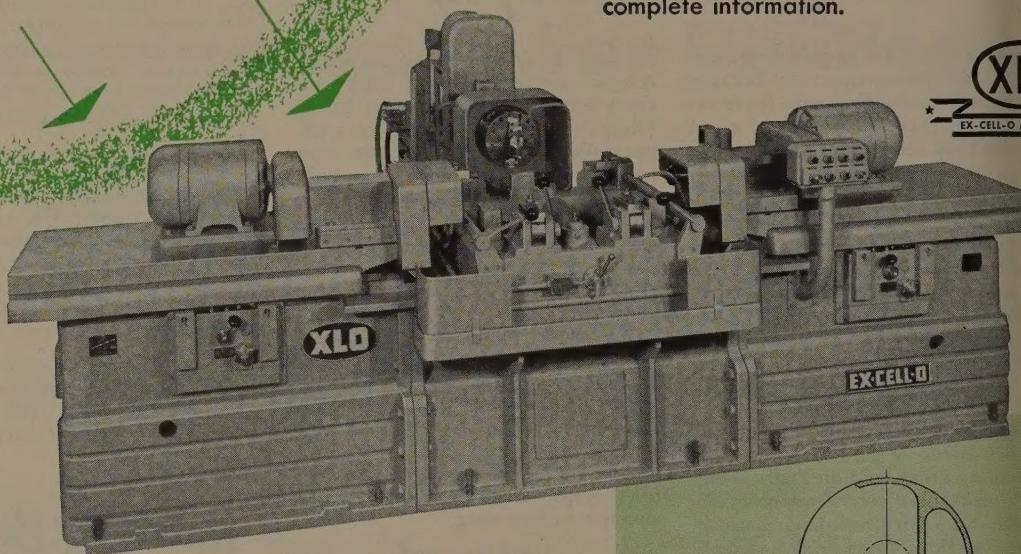
Street Address _____

City _____

State _____

SAVE TIME, INCREASE PRODUCTION

with EX-CELL-O
WAY MACHINES

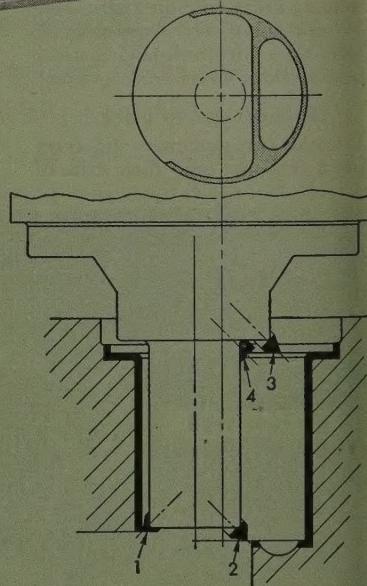


Right: Tool layout for roughing operations at the rear station. Tool 1 bores the hole as the table feeds forward to a positive stop. Then the cross-feed head moves across while tool 2 faces an area at the base of the bore and tool 3 faces the shoulder of the counterbore. As the cross-feed slide approaches the end of its stroke tool 4 chamfers the edge of the bore. The table then reverses in feed until tool 2 blends its cut with the bore produced by tool 1, and tool 3 bores the counterbore, after which both table and cross-feed head return to the start position. The upper drawing is a view looking into the hole. The circle in broken lines shows the path of tool 2 while tool 1 is boring. The shaded portion is the area faced by tool 2.

Ex-Cell-O Way Machines save time by working from 2, 3, or 4 directions simultaneously, holding accurate relationship between the various operations. Standard self-contained way units can be rearranged for different work, using units individually or combined with others.

This Three-Way Precision Boring Machine uses three standard way units. The two side units perform conventional boring, plunge-facing and chamfering operations on holes approximately 3 inches in diameter. The rear station performs more complicated work requiring a cross-feed head (see drawing). The bore diameter at the rear station is 4 inches, and is held to limits of plus or minus .0005".

Ask your Ex-Cell-O representative for complete information.



EX-CELL-O
CORPORATION
DETROIT 32, MICHIGAN

MANUFACTURERS OF PRECISION MACHINE TOOLS
CUTTING TOOLS • RAILROAD PINS AND BUSHINGS
DRILL JIG BUSHINGS • DAIRY EQUIPMENT
AIRCRAFT AND MISCELLANEOUS PRODUCTION PARTS

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EX-CELL-O for PRECISION

PRECISION MACHINE TOOLS

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PRECISION GRINDING SPINDLES

DRILL-JIG BUSHINGS

AIRCRAFT AND PRECISION PARTS

HYDRAULIC POWER UNITS

Products of
EX-CELL-O
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DETROIT 32, MICHIGAN

Behind the Scenes...

Our Sentiments

We'd like to thank the many readers who sent us greetings and well-wishes for the holidays. We have them all displayed around us in our "office" here and we are racking our brain to find a way to get up a puzzle about "If Geraldine read 17 of them and we read 23 and the sum of the total difference . . . etc." If one comes along in the future—work it. It's bound to be simple.

Unsurpassed Synthetic RUBBER COMPONENT PARTS



Users of Acadia Synthetic Rubber component parts in hundreds of industries have found them unsurpassed. No matter what function synthetic rubber must perform, depend on Acadia parts. They best meet exacting specifications and operating conditions such as moisture, oil, heat, wear and age resistance. Molded, extruded, die-cut to close limits—compounded to meet specific conditions. Acadia engineers will gladly cooperate.

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CHICAGO 23, ILLINOIS

tising pages in STEEL during 1951 had a whale of a lot of information in them. Incidentally, pardon our swelling chest, we gained 17 percent over 1951 in advertising pages and 1951 was a 17 per cent gain over 1950.

While we're on the subject of studies and reports we'd like to express the research department's appreciation of your co-operation in answering questionnaires for us.

Puzzle Corner

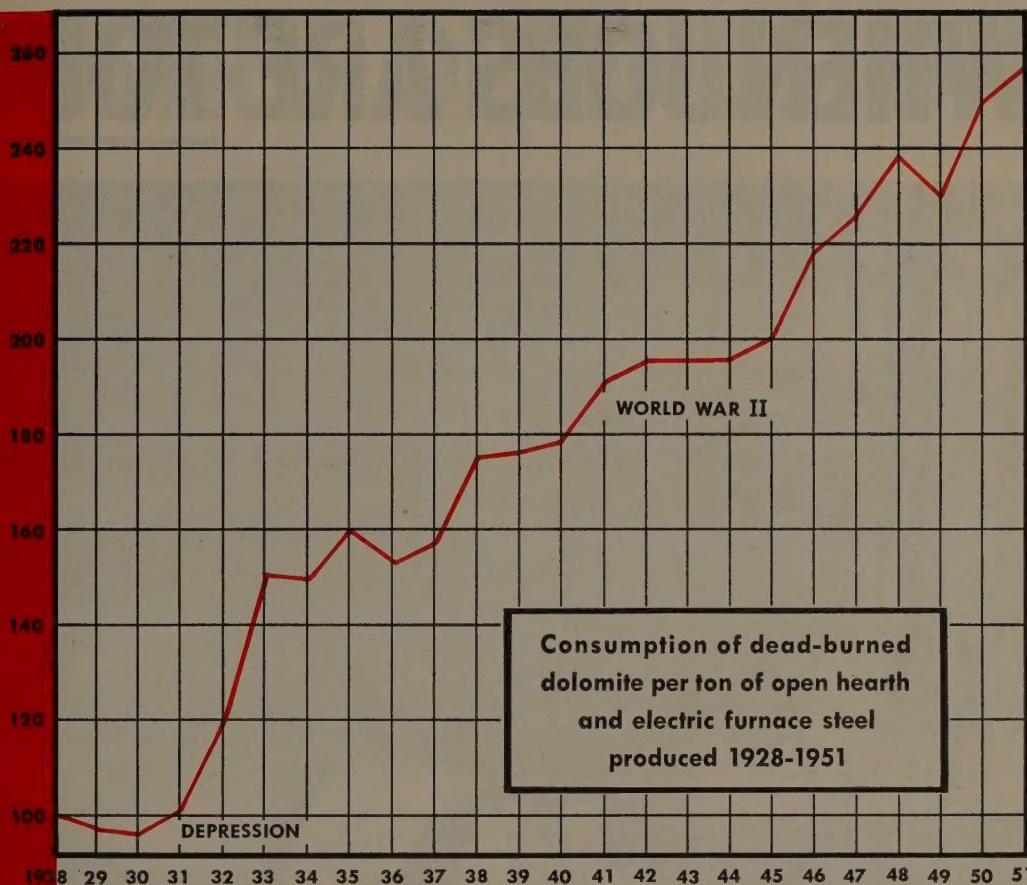
This week we have two unanswered puzzles to get cleared up. The first one is in the issue of Dec. 22. It's the one about the milk dropping into the water. Right answer is that there will be a 50-50 mixture in 693 seconds. In with that one were Leo C. Lye, International Business Machines Corp., and L. D. Rice, Timken Roller Bearing Co.

Second unanswered puzzle is the one in the issue of Dec. 29. It's the one about Al and Sam having a certain amount of money and then doing some trading. Correct figure for that one is that Al had \$5.00 and Sam had \$7.00. First with that one were: L. Scott, Baker Oil Tools Inc., J.H. Jewett, United Steel & Iron Works Co., Mrs. E. Shrdlu, Cleveland, H. Pappenheimer, Specialty Device Co., John Hickey Jr., Bohn Aluminum & Brass Corp., Harry R. Rupp, Service Iron & Steel Co., Mrs. Carl E. Fussner, Birmingham, Mich., and T.A. Kostenbader, Bethlehem, Pa.

As long as we have our boy Al and Sam throwing money around (you should have seen them New Year's Eve) we'll use the puzzle suggested this week by Mr. Kostenbader. He says that Al and Sam have a fixed amount of money. If Al gives Sam a dollar, Sam will have three times as much as Al. But if Al gives Al a dollar they'll both have the same amount. How much does each man have?

Just so you'll be ready for it when it comes—we'll warn you that we have a real buster in the works. We're still trying to work it out and as soon as we, or Geraldine, can do it we'll give it to you. Brother, it's rough.

Shrdlu



Consumption of dead-burned dolomite per ton of open hearth and electric furnace steel produced 1928-1951

the uptrend in dead-burned dolomite

THIS chart presents a graphic picture of the trend in fettling refractories. Taking as a base period 1928, the first year for which industry figures are available, it indicates the increase in consumption of dead-burned dolomite per ton of steel produced annually through 1951.*

Dead-burned dolomite was developed as a substitute for Austrian magnesite in 1914. At that time it was generally thought that the product would disappear when European shipments could be resumed. However, product and process research resulted in such improvement in quality and cost that the use of dead-burned dolomite climbed steadily throughout the 1920s. The trend gained impetus as a consequence of efforts of steelmakers through the depression

years to take greater advantage of the economies promised through the increased use of dead-burned dolomite.

Despite the consistently upward trend of 24 years, and the fact that the steel industry utilized slightly over 1 ½ million tons in 1951, there have been few times since the late '30s when the supply of dead-burned dolomite was sufficient to permit any major shift to it by users of other fettling materials. Now for the first time in 10 years, with two new kilns in operation at our Ohio Works, there are adequate supplies available for any steel producer who wishes to convert to dead-burned dolomite practice or to improve his present practice through the use of more of this quick-setting, dependable, low-cost refractory.

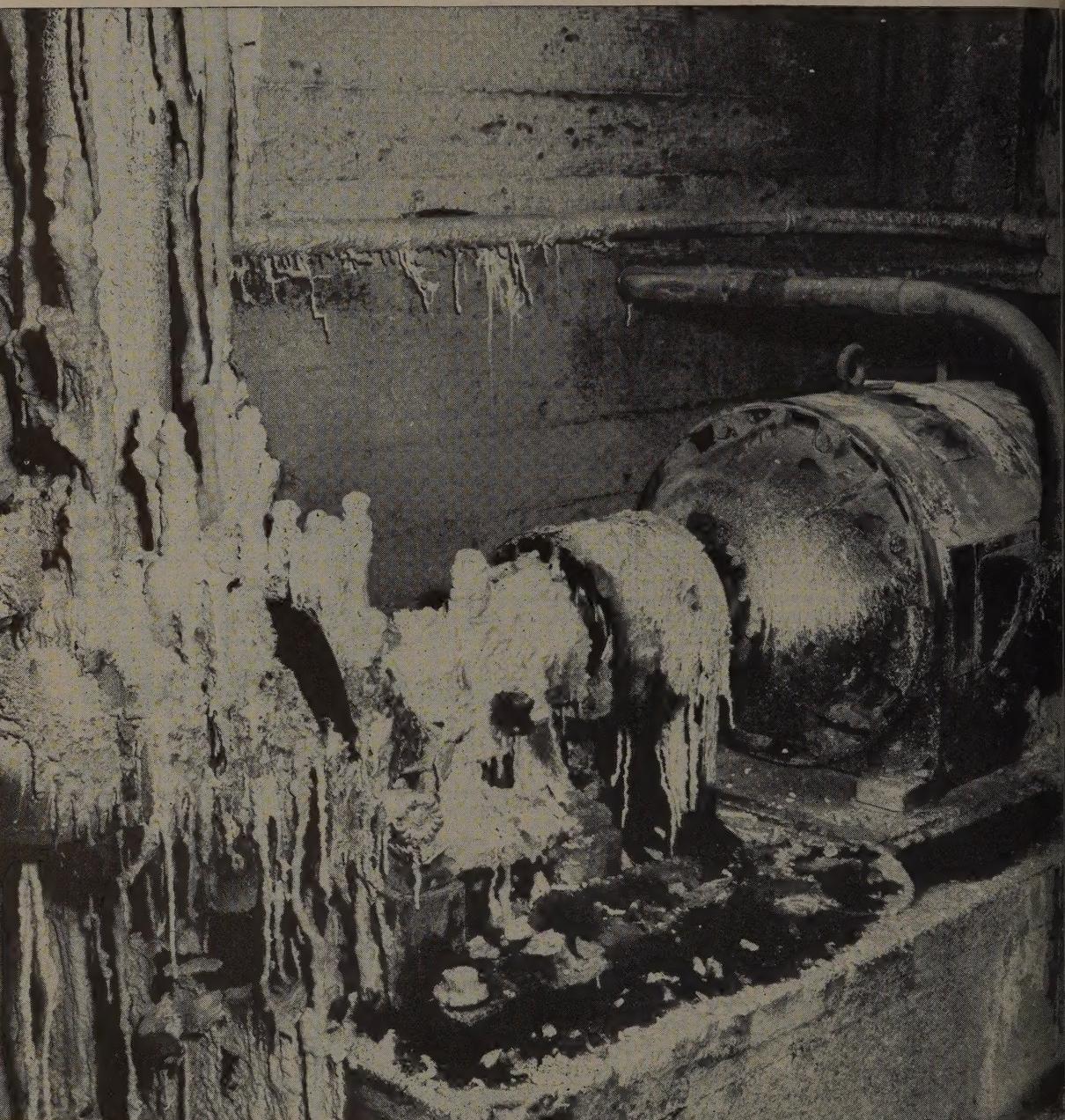
*Each year's figure expressed as percentage of base period.

Basic Refractories Incorporated

845 HANNA BUILDING, CLEVELAND 15, OHIO

Write for free booklet "Underlying Steel". This graphic booklet tells the story in words and pictures of granular basic refractories and their role in the production of open hearth steel. Address Dept. 16.

WHEN JOBS ARE TOUGH



CORROSIVE ATMOSPHERE doesn't bother this standard, "off-the-shelf" Tri-Clad motor. Totally enclosed,

fan cooled, it runs 12 hours a day, six days a week, driving a flash cooler pump under tough conditions in a chemical plant.

GENERAL ELECTRIC



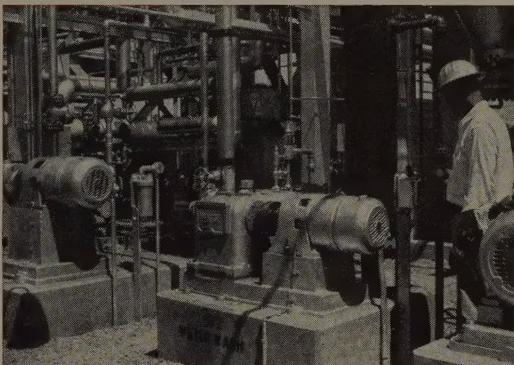
INDUSTRY DEPENDS ON -E **TRI/CLAD** MOTORS

REG. U.S. PAT. OFF.

Three typical tough jobs being done safely, economically and without interruption, by G-E Tri-Clad motors. They help show why more than 10,000,000 horsepower of Tri-Clad motors are serving American industry.

WIDEST VARIETY

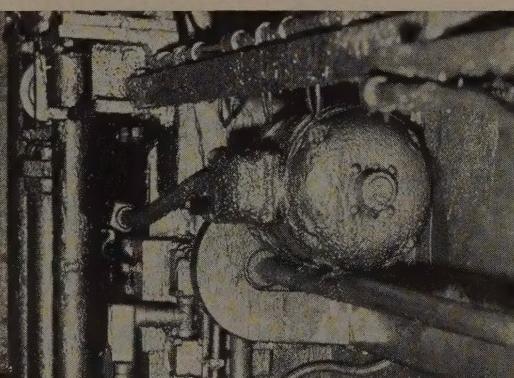
The widest selection of standard motors obtainable here, the Tri-Clad motor line offers ratings up to 1,000 hp; all types of enclosures; gear motors, brake motors, adjustable-speed drives—plus many other mechanical and electrical modifications to meet your requirements.



EXPLOSIVE ATMOSPHERE dangers are avoided by using standard explosion-proof Tri-Clad motors, such as these gear-motors driving water and hydrocarbon pumps in an oil refinery.

TRIPLE PROTECTION

Get triple protection with *every* Tri-Clad motor—protection against physical damage, electrical breakdown, and operational wear and tear. Completely enclosed bearings last longer because they can be relubricated if necessary—and never shutdown! For specific product information, use the coupon below, or contact your nearby G-E Apparatus Office, authorized G-E Agent or Distributor.



OIL, MOISTURE, ABRASIVE DUST can't stop this totally-enclosed Tri-Clad motor, operating below the strip in a cold strip steel mill. Motor is completely protected inside and out.

IMMEDIATE DELIVERY

Standard G-E Tri-Clad motors are available immediately from stock. And the most complete sales and service work in the motor industry assures you prompt service and trained specialist and application engineers, for all your motor problems. General Electric Co., Schenectady, New York.

752-16

PROGRESSIVE MECHANIZATION...

a new G-E MORE POWER TO AMERICA program—motion picture and manual—case histories of the latest mechanization trends.

Send for literature.

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Firm.....

Address.....

City.....

Zone..... State.....

Section S 752-16

General Electric Co., Schenectady 5, N. Y.

Please send me the following on Progressive Mechanization:

- Free copy of the Progressive Mechanization Manual (GEA-5789)

Please send the following product bulletins:

- GEA-3580 (Open Driproof Motors)
 GEA-4400 (Totally Enclosed Motors)



LETTER TO THE EDITORS

Ohio as a Steel Producer

As a news reporter I need information as to the amount of steel produced in the state of Ohio per year. What percentage is this of the nation's output?

Twila Clegg
East Lincoln-Wayne
Miner 0

• Ingot capacity for Ohio, as of Jan. 1, 1952, was 22,576,360 net tons while the nation's capacity was 108,587,676 net tons. Ohio produced about 21 percent of the nation's output.—ED.

Question on Continuous Casting

I would be very much obliged if you would kindly send me at your earliest convenience reprints of articles on continuous casting of ferrous and non-ferrous metals based on the Jungnickel and Rossi process, which articles have appeared in STEEL during the past few years.

F. J. Pfeifer
Sales Manager
Cosa Export Company
Newton 0

• They're being sent.—ED.

Interest in Latin America

Please send me tear sheets of "Sel-making in Latin America," (Nov. 24, p. 79).

Oswald Sonnenburg
Department of Geography
University of Pittsburgh
Pittsburgh

• Sent.—ED.

Slip Up in Canada

You people are usually so accurate that I don't know how you slipped up on this one. I'm referring to the photo caption (Dec. 15, p. 116) in which you incorrectly describe the Chute-du-Diable, Quebec, development as an Alcoa corporation. It is actually being done by the Aluminum Co. of Canada, Ltd.; they are competitive companies and not associated together in any way.

George O. Morgan Jr.
assistant to the president
Aluminum Import Corp.
New York

Who and Where Department

Your article "No Heat Needed" (Dec. 15, p. 103) deals with a new power washer and we wonder if you could give us the name of the manufacturer of this unit.

C. G. Hendel
general manager
Defiance Screw Machine Products
Defiance 0

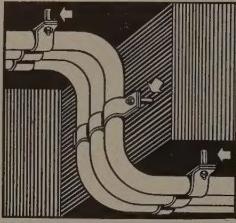
• Write to E. F. Houghton & Co., 301 W. Lehigh Ave., Philadelphia 33, for further information on the power washer.—ED.

Smooth as Glass Lubricants

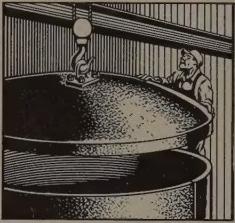
In your article "Glass for Dies" (Dec. 8, p. 93), mention is made of the Uline. Continued on following page

TO HANG....TO HANDLE....TO HOLD...

Faster installation of brackets or hangers for piping, tubing or conduit.



Fast installation of handling accessories that can be easily removed.



Split second stud welding lowers fabrication costs, improves product.



THE NELSON FASTENING ENGINEER WILL SHOW YOU



...right in your own plant how your production and your products can be improved with this modern fastening method. Your design and production men can actually participate and test the results on your own products.

For full information on Nelweld as applied to steel fabrication, write the Main Office, Lorain, Ohio.

Faster it Better...at Less Cost, with

NELSON STUD WELDING

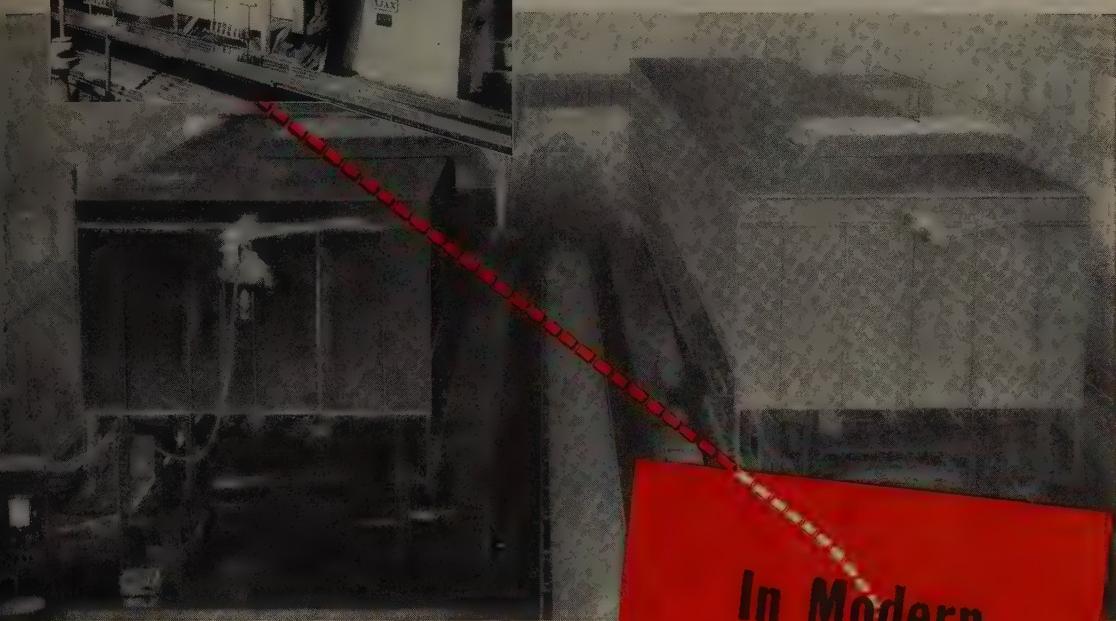
DIVISION OF GREGORY INDUSTRIES, INC., LORAIN, OHIO



T.M. REG.



From the batch type installation at the left marquenching base detonator fuses, to the huge mechanized furnaces austempering automobile bumpers illustrated below, Ajax Electric Salt Bath Furnaces are replacing old-style quench and temper methods for a wide variety of steel products.



From ring gears to plow points . . .

From bearing races to cast iron cylinder sleeves . . .

From uniformly shaped metal parts to odd and irregular sizes . . .

Scores of installations have proved the tremendous possibilities for economy, greater speed and efficiency in marquenching and austempering, because all water and oil quenches are eliminated.

Distortion is so negligible that parts can be machine finished *before* hardening. Final grinding is eliminated or materially reduced. Scale, decarb and quench cracks are eliminated. Toughness and ductility are increased. The work is done materially faster—in less floor space—with lower labor costs. Let the Ajax Metallurgical Service Laboratory prove these claims on a specimen batch of your actual parts, under actual working conditions.

Write for Ajax Bulletin 120

AJAX ELECTRIC COMPANY, INC.

952 Marshall Street

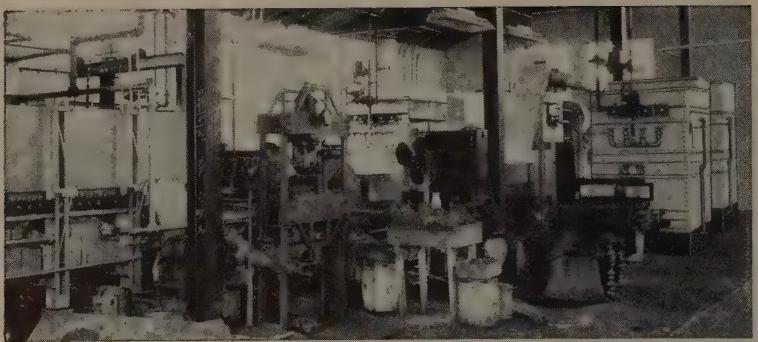
Philadelphia 23, Penna.

World's largest manufacturer of electric heat treating furnaces exclusively



AJAX **ELECTRIC** SALT BATH **FURNACES**

In Modern
Heat Treating—
the Trend
is to
MARQUEENCHING
and
AUSTEMPERING



Niagara Aero Heat Exchanger quickly pulls down the initial peak load of heat in quenching . . . and saves cooling water

Accurate control of quench bath temperatures and quickly effective capacity to handle the initial peak load of heat in quenching prevents production set-backs, increases the output of your heat treating department, prevents oil fires, saves you losses from rejected parts.

Niagara Aero Heat Exchangers give you this control in both furnace and induction hardening methods. They prevent both over-heating and over-cooling of the quench bath. Hundreds of heat treaters know they prevent many troubles, constantly improve quality and increase production.

They quickly pay for themselves by saving cooling water coils and extend your quench capacity without extra water or cooling tower.

Write for Bulletin #120 giving complete information.

NIAGARA BLOWER COMPANY

Over 35 Years' Service in Industrial Air Engineering

Dept. S, 405 Lexington Ave.

New York 17, N. Y.

Experienced District Engineers in all Principal Cities of U. S. and Canada

LETTERS

Concluded from preceding page

Sejournet process concerning glassfor dies and lubricants. We would be interested in obtaining any literature, information or references you may have concerning this subject.

T. R. Critow
assistant development engineer
Oliver Iron & Steel Corp.
Pittsburgh

• The companies involved specifically requested that their names be withheld while development work is going on. STEEL will, of course, publish additional information as it becomes available.—ED.

Facts on Flying Freight

Your article "Air Freight Flies High" (Dec. 29, p. 46) has received a lot of favorable comment in the industry. I would like to add my commendation on a well written article.

G. W. Hawley,
district sales manager
American Alpine
Cleveland

Calibration System

Will you please tell us where we may secure a small amount of pure tin, no and lead. This is for use in calibrating thermocouples.

J. C. Hardgrave,
professor, mechanical engineering
Texas Technological College
Lubbock, Tex.

• In addition to sources for pure metals which we have sent you "Letters to the Editors" (Dec. 15, p. 12), we think this information from Weiller Instruments Corp., New York, might best interest to you.

"We have designed a series of temperature standards. Electric furnaces with low inertia heaters and crucibles are filled with salts or metals carefully selected for their high purity. The standard is connected to the line and the metal is melted. The thermometer to be calibrated is carefully inserted in the melted metal and the power is switched off. The temperature will now drop. When the melting point is reached, the temperature will remain stationary for an appreciable period of time (several minutes).

"Calibration to .1 degree is made very easy by this method. With some care, an accuracy of .01 degree may be obtained.

"The following points are now available: Glauber Salt—32.38° C; Metal Sodium—97.77; Eutectic #1—144.4° —ED.

Ductile Iron Details

Could you give me more information on Allis-Chalmers' method of making ductile iron (Nov. 17, p. 85) "New Tough Iron."

E. S.
consulting engineer
Montreal, Can.

. . . we note that Allis-Chalmers has reported the use of common salt and calcium silicide as additives to grey iron for increasing its strength. We would be pleased to know where one might obtain further details.

D. H. Washburn
Price Washburn, S. de R.
Monterrey, Mexico

• Allis-Chalmers expected to make further announcement in December but now informs us that that announcement will be delayed.—ED.

one unit or a complete system . . .

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SPIRAL CONVEYORS

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Efficient, fast, low-cost production (24-hour service if need be) calls for adapting the right unit or units to each individual job. Since Jeffrey builds so many kinds of handling devices, isn't it logical to rely upon the recommendations of our Engineers?

Whether it's conveying, elevating, feeding, drying, cooling, crushing or pulverizing, packing or transmitting power...Jeffrey can provide the right unit—or complete system—with a working knowledge based on 75 years of experience and scores of installations. What is your materials-handling or processing problem?

JEFFREY

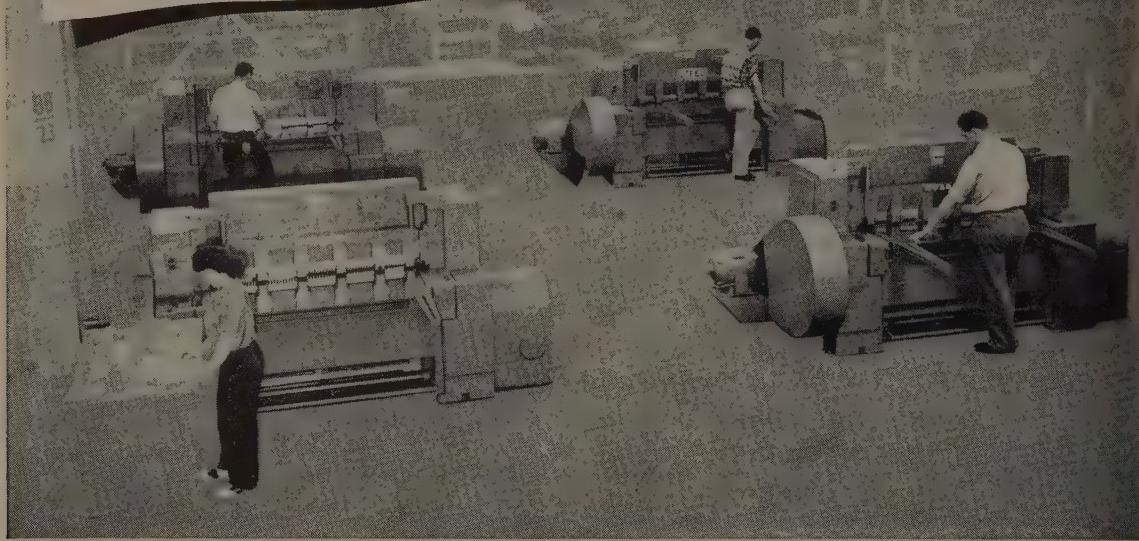
MANUFACTURING COMPANY
889 North Fourth St., Columbus 16, Ohio

Material
Handling,
Processing
and Mining
Equipment



Baltimore 2 Boston 16 Cincinnati 2 Detroit 13 Houston 2 New York 7 St. Louis 1
Clayton, W. Va. Buffalo 2 Cleveland 15 Forty Fort, Pa. Jacksonville 2 Philadelphia 3 Salt Lake City 1
Birmingham 3 Chicago 1 Denver 2 Harlan, Ky. Milwaukee 2 Pittsburgh 22
Jeffrey Mfg. Co., Ltd., Montreal, Canada The Galion Iron Works & Mfg. Co., Galion and Bucyrus, Ohio
Jeffrey-Diamond Ltd., Wakefield, England Galion (Great Britain Ltd.), Wakefield, England
Jeffrey-Galion (Pty) Ltd., Johannesburg, S. A. The Ohio Malleable Iron Co., Columbus, Ohio
The Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.

THE
Glenn L. Martin Co.
chooses
WYSONG
POWER SQUARING SHEARS



This Installation sold by Industrial Sales Co. of Washington, D. C.
Branches in Baltimore, Philadelphia, Chicago and Greensboro, N. C.

The above illustration shows four of a battery of 11 Wysong power squaring shears in the production line at *The Glenn L. Martin Company*, world famous manufacturers of aircraft. The four shears illustrated are Wysong No. 748 with a capacity of 3/16 inch mild steel and a cutting length of 48 inches.

Like *The Glenn L. Martin Company*, many nationally known firms are using Wysong shears in producing articles for defense, for transportation, and for use in daily life. The rigid construction from H-tensile castings gives Wysong shears a long

life of accurate shearing. Precision gauges make positioning of stock quick and easy.

Wysong builds 24 different models of power squaring shears with capacities up to 1/4 inch mild steel, in cutting lengths up to 12 feet. There is a size to fit your needs.

Wysong also builds Air Power and Foot Power Squaring Shears in capacities of 18 and 16 gauge mild steel, in cutting lengths from 36 inches to 10 feet; O.B.I. Presses; Slip Roll Forming Machines; and Rotary Combination Machines. See your dealer or write to the factory for full information.



Wysong & Miles Company, Greensboro, N. C.



PERFECT SURFACE IS A "MUST". . .

Large drying rolls, like the one below receiving its final polishing pass, are used in "Yankee Dryer" paper-making machines which turn out soft facial tissue. Even slight surface flaws in these eight- and twelve-foot diameter castings cause them to be rejected.

So they use CHATEAUGAY PIG IRON

. . . the low-phosphorus, copper-free pig iron that has eliminated scrap losses in countless "tough casting" jobs. With CHATEAUGAY, consistently uniform "physicals" assure predetermined fine grain structure throughout every casting, regardless of size or shape.

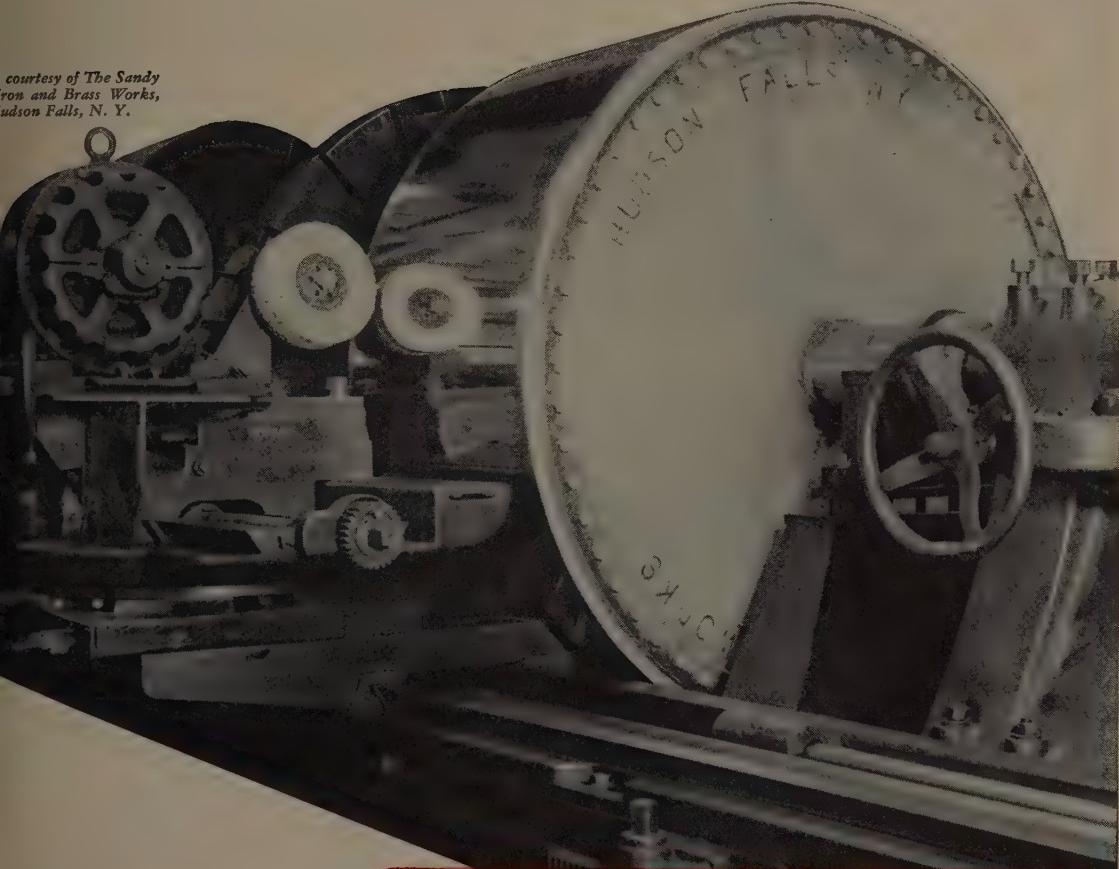
Whatever the requirements of your castings—if ordinary pig iron won't do the job—NOW is the time to investigate the *exclusive* advantages of premium CHATEAUGAY. A Republic Pig Iron Metallurgist will be glad to give you the complete facts at your convenience. Write today to:

REPUBLIC STEEL CORPORATION

GENERAL OFFICES • CLEVELAND 1, OHIO

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courtesy of The Sandy
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Republic PIG IRON

"CHATEAUGAY"
Low-Phosphorus,
Copper-Free

"REPUBLIC"
(Northern)
Foundry, Basic
and Malleable

"PIONEER"
(Southern)
Foundry and Basic





**EFFICIENT CUTTING...
LONG BLADE LIFE...
plus at least
15% LOWER INITIAL COST
with
VICTOR "Moly"®
High Speed
Power Blades**

Do your toughest metal cutting jobs efficiently, economically and right with VICTOR "Moly" High Speed Power Blades.

To begin with, you'll reduce your initial blade cost by 15%. From then on, you'll find additional savings in better cutting and longer blade life. Quality steel, carefully heat treated, fabricated on special machinery, has made VICTOR Blades industry's preferred blades for over half a century. And your Industrial Distributor will give you free copies of the VICTOR Metal Cutting Booklet which tells you what blade to use for every job. Ask him for it.

**FAST SERVICE
for you from your
INDUSTRIAL DISTRIBUTOR**

VICTOR "Moly" High Speed Power Blades are sold only through recognized distributors—the men you know and have confidence in, the men who have stocks on hand to give you fast service when and where you want it. You're wise to buy whatever you can from your recognized distributor.



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VICTOR

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Makers of Hand and Power Hack Saw Blades,
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STEEL

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GISHOLT



TIME-SAVING IDEAS

Presented as a service to machine shops, we hope some of these interesting ideas, culled from thousands of jobs, will suggest ways to help you cut time and costs in your own metal work.

SHOWS MODERN TREND IN BALANCING

Machine Balances And Corrects 100 Fans Per Hour

Industry knows the importance of balancing rotating parts, large and small. It's fast becoming a regular part of production...and by combining balancing more and more with the complete balancing process in one machine,

being done here:

A part is a small fan for a well-known vacuum sweeper. One Gisholt DYNAMIC Balancer with correction equipment as an integral part of the machine, handles the full production—locating, measuring and correcting static unbalance at a rate of 100 fans per hour.

Locating and measuring unbalance is a matter of only a few seconds. The operator then turns the fan to the proper angle and turns a hand-wheel to correspond with the meter reading. At the press of a button, a fly-cutter removes the exact amount of metal to bring the fan into balance.

Thus, the entire job—locating and measuring unbalance, correction and

inspection for over-all accuracy—is done in one operation. It saves handling. Only one loading is necessary.

With this entire balancing operation averaging only 30 seconds, the balancing cost is repaid many times by the greater smoothness, quietness and longer life of the fans.



Front and back of fan with metal removed to correct unbalance.



Close-up showing method of correcting unbalance by use of fly-cutter.

Gisholt Balancing Machine with integral correction equipment.



BALANCING SCHOOL.



Ask for details and starting dates of the Gisholt Balancing School, industry's only complete training program.



TIME-SAVING IDEAS

HOW CAREFUL PLANNING SAVES 2nd OPERATION

Two-Stage Setup on Simplimatic Provides Answers

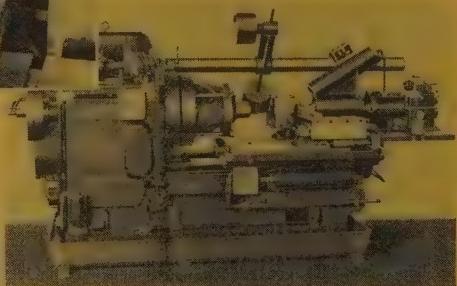
Here's ingenuity at work again.

This Simplimatic Automatic Lathe is making real savings in the machining of these 4½" rock bits for oil well drilling. Here's the story:

Loading—Initial alignment is very important. This is assured by a special loading fixture. The bit, complete with cutters, is loaded into the swing-



Close-up of tool slide extended to cut center in bit shank. Slide then retracts and tailstock comes in to support the shank.



Simplimatic with special tailstock tool slide and swinging fixture for loading and unloading.

ing air-operated cup fixture which holds it on the spindle centerline. An air-operated drawbar then pulls the loading fixture against locating stops. The chucking fixture is engaged and the piece is ready for machining.

1st Stage—An angular slide moves in to center the bore. With this done, it retracts and the tailstock center comes in to support the shank for the heavy cuts to follow. All this is part of the completely automatic cycle.

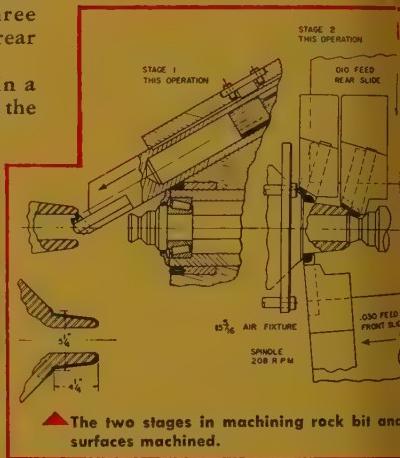
2nd Stage—With the center in place, tools on the front slide taper turn the shank, which is made up of three welded sections. Tools on the rear slide chamfer and turn the face.

Remember, all this is done in a single automatic operation...and the

time is only 2.25 minutes. Production-wise, this Simplimatic (which handles a number of different jobs) is producing at a rate equivalent to three hand-operated turret lathes.

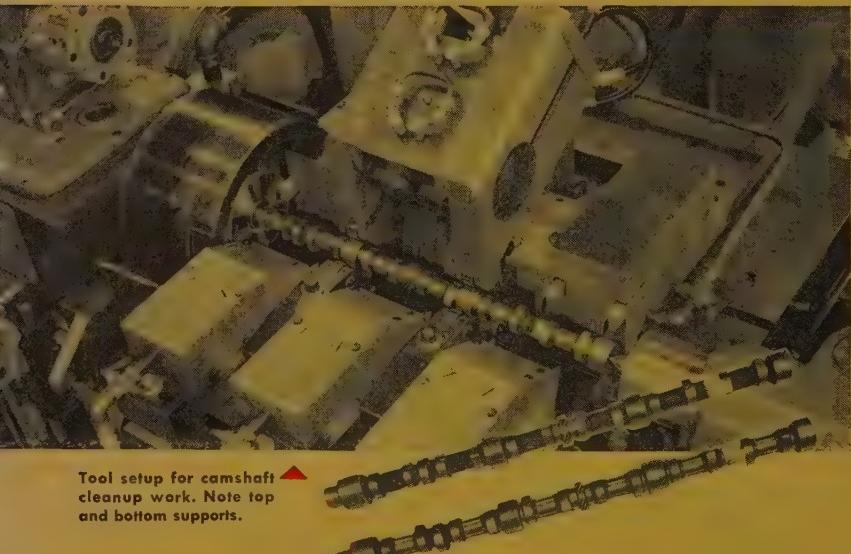
The machining of these parts is reduced to a one-chucking job by the addition of a special tool slide for centering the workpiece.

This is just one of 31 interesting operations shown in the all-new Simplimatic catalog. Write for your copy today.



The two stages in machining rock bit and surfaces machined.

CAMSHAFTS GET QUICK CLEANUP IN THIS HIGH-PRODUCTION SETUP



Tool setup for camshaft cleanup work. Note top and bottom supports.

Camshaft before cleanup; bottom camshaft after machining.

Uses No. 12 Hydraulic Automatic Lathe

This job, cleanup operations on six-cylinder camshaft, shows the kind of top speed, highly efficient setup demanded by the automotive industry.

A driver and center hold the camshaft. To give the long, thin camshaft the support required to prevent distortion and whip, there are two sets of intermediate rollers. The top roller moves in automatically before the camshaft is started and retracts for unloading.

Slides and carriages are tied together in pairs to handle the long length of the camshaft. The six diameters of the camshaft are turned with tools at the front. Form tools at the rear then plunge cut and clean up the ends. Time per camshaft is 0.4 minute.

The fully automatic cycle of the No. 12 Hydraulic Lathe simplifies and speeds cleanup work on these automotive camshafts.





HERE C/F TURRET LATHE REALLY PAYS OFF

TIME-SAVING IDEAS

Work Done with Ease

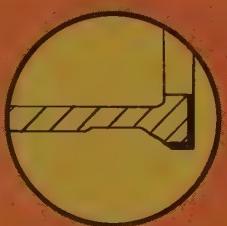
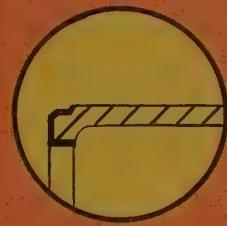
problems faced in the making of these housings were (1) of the thin wall part and, (2) facing the center bore. A face plate fixture with draw-bolts provided the careful answer.

In machining, the job might have involved several operations with special tooling. However, a Saddle Type Turret Lathe with cross-feeding turret solved this problem. With the sliding hexagon simple standard tools handle all of different surfaces, including back face and counterbore at the right in the drawing. Moreover, by doing the job in one setting, concentricity is assured on all different diameters.

With the cross-feeding turret, you need both laterally and longitudinally. Thus you can use simple tooling and can quickly change over to other types of work.

Tooling, plus the cross-feeding of this Saddle Type Lathe, add up to savings on this interesting job.

Simple setup for machining awkward, thin-wall part.



Operations, including back facing, performed on this job.

GOOD TURRET LATHE SETUP FOR SMALL BRASS PARTS

Ram Type Lathe Handles Parts in 5 Sizes

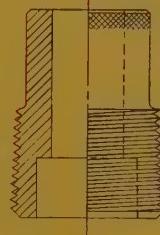
This is a business-like setup for turning cast-brass plug bodies on a Ram Type Turret Lathe. Held inside hex diameter by special means on an aluminum chuck, a common turning, boring and facing operation at the first station does the bulk work.

Drilling follows at the next station and required rough finish put on

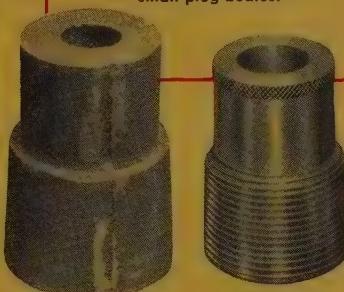
450 f.p.m. The third station is merely a revolving center which supports the end while a shave tool on the rear of the cross slide forms the taper O.D. At the last station, the taper is threaded by a special self-opening die head.

On a test run, this plug was machined in 0.84 minute, floor-to-floor. In addition, four other sizes, ranging from $1\frac{3}{4}$ " to $2\frac{1}{16}$ " O.D. are handled.

This user is time ahead by a fine job of tooling and a fast ram type lathe.

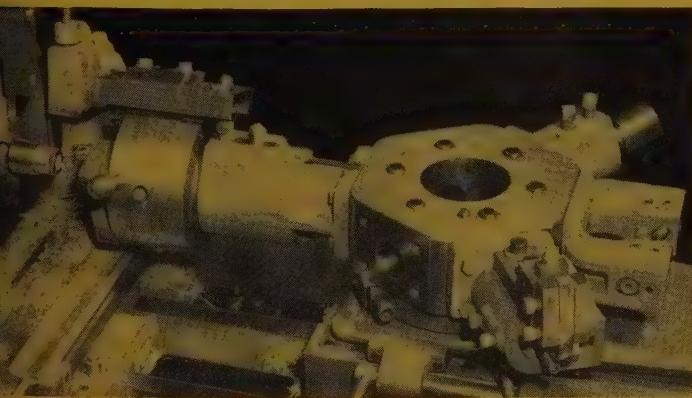


Work performed on the small plug bodies.



Before and after view of cast-brass plug body.

Final operation on the cast plug body is threading the taper.





TIME-SAVING IDEAS

JOB SWITCHED TO FASTERMATIC— PRODUCTION DOUBLE



Complicated Form Machined with Ease

There was a 140% speedup in first-operation machining of these propeller nose nuts when the job went to the Fastermatic Automatic Turret Lathe. Time now is 5.0 minutes as against 12 minutes on a hand-operated machine.

The drawing shows the many surfaces to be handled. Working at five separate feeds, conventional tools rough and finish bore, turn and face. Doing the taper bore is a simple mat-

ter with the help of a turret facing attachment guided by a cam bar on the rear independent slide. A necking tool operated by an overhead stop bar does the recess in the bore.

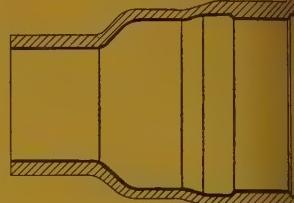
Other advantages of the Fastermatic for this job are that no further finishing is required and its repeat accuracy has virtually eliminated spoilage.

Using standard tools, and in a continuous automatic cycle, this Fastermatic cuts tool costs and machining time in first operation work on these parts.



▲ Before and after machining.

◀ Simple setup for first operation on propeller nose nuts.



Heavy lines show surfaces machined Fastermatic.

Good News on Deliveries! Production has been stepped up again on 1F and 2 Fastermatics. Check your requirements with your Gisholt representative now.

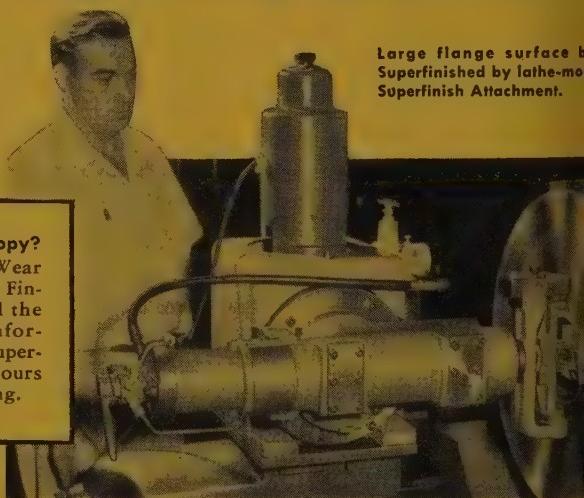
COST-SAVING IDEA FOR SUPERFINISHING

Mounts on Lathe to Provide Better Surfaces at Lower Cost

This beam flange for textile equipment is a far better product since Superfinishing has a part in its making. Yet, the investment in Superfinishing equipment is surprisingly low...the manufacturer simply mounted a Superfinish Attachment on the tool post of his engine lathe.

Formerly, the flange face was turned and then ground. Now, grinding has been eliminated and Superfinishing gives him a far better surface...in less time and at lower cost.

With a lathe-mounted Superfinish Attachment, this user is gaining important savings in grinding time while getting better, smoother, longer wearing surfaces.



Have your copy?
The book, "Wear and Surface Finish" has all the facts and information on Superfinish. It's yours for the asking.

No. 1-253

604



THE GISHOLT ROUND TABLE represents the collective experience of specialists in the machining, surface-finishing and balancing of round and square parts. Your problems are welcomed here.

GISHOLT

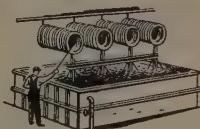
MACHINE COMPANY Madison 10, Wisconsin

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For PROTECTION *that fits the Job!*

Specify **PITT CHEM**
TAR BASE COATINGS

PITT CHEM 101



A heavy-film coating for protection of metal, masonry, stone and brick against very corrosive vapors, acid and alkali spillage and extreme moisture conditions.

PITT CHEM 102



A thin, high gloss maintenance coating to protect metal and concrete surfaces against normal atmospheric corrosion, mildly corrosive vapors and moisture.

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A heavy duty general maintenance coating for moderately severe corrosive conditions like dilute mineral acids, alkalies, sewage, moisture and corrosive vapors.

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Specifically formulated to protect potable water tanks and water transmission equipment. Dries very quickly and imparts no taste or odor to potable water.

PITT CHEM 105



An irreversible, fast drying coal tar emulsion which provides excellent corrosion resistance on metal, concrete, brick and stone.

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Corrosion Control
Booklet

Tells where tar base coatings can save you money in your plant . . . what grades to use . . . how to apply them.



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DIVERSITY OF EQUIPMENT for METAL WORKING ~



500 ton Hydraulic Press



Erie 4 roll Board Drop Hammer



Erie 25,000 lb.
Steam Hammer



Erie Trimming Press



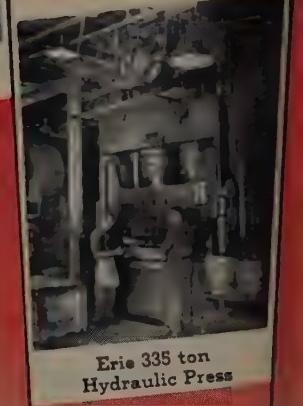
Erie Double Frame Forging Hammer



Erie Single Frame Forging Hammer



2 roll Board Drop Hammer



Erie 335 ton
Hydraulic Press

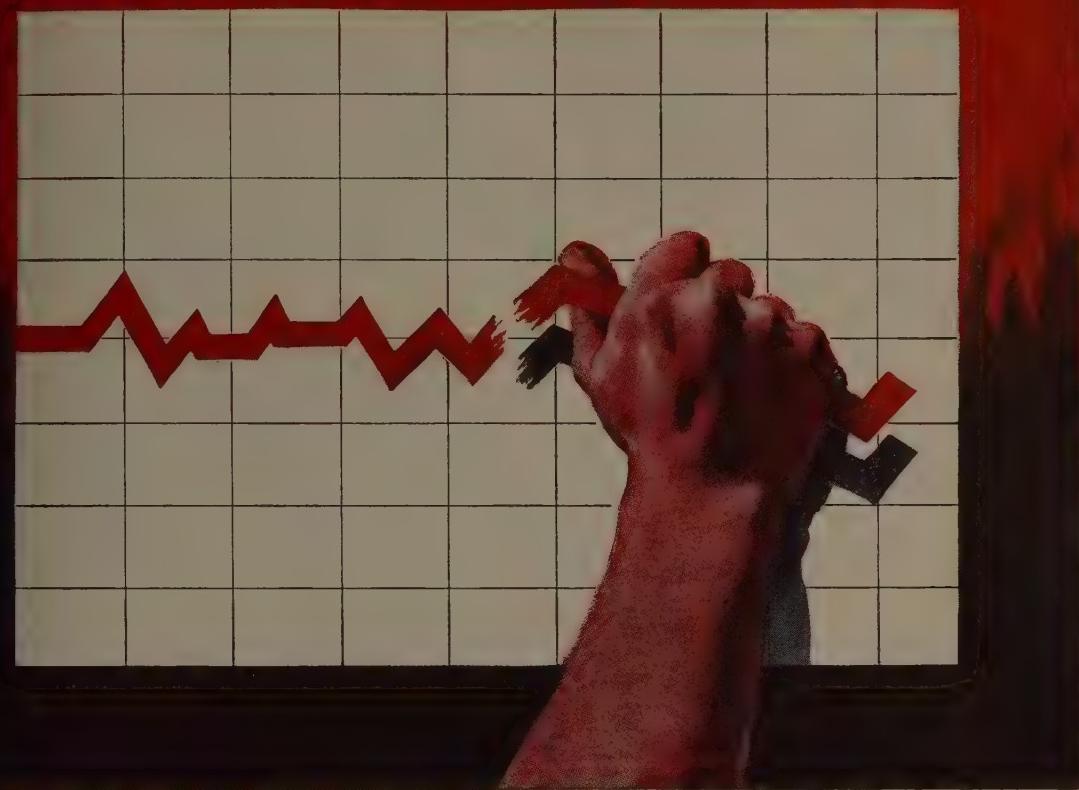
FOR more than half a century Erie Foundry Company has served the metal-working industry with top performance steam and air operated hammers, board drop hammers, double and single frame forging hammers, trimming presses and hydraulic presses. Before making your selection consult with our engineers.

Bulletins on all of these products are yours on request.

ERIE FOUNDRY COMPANY ERIE, PENNSYLVANIA

ERIE

Dependable FORGING HAMMERS • HYDRAULIC PRESSES



How much tonnage does your down-time steal?

EXCESSIVE down-time for bottom repairs steals precious production time—time when your furnace should be making steel!

You can cut costly repairs, greatly increase your tonnage per year, when you install a bottom of Permanente 165 *periclase* ramming mix.

Bonded by means of crystal-bridging, patented Permanente 165 begins formation of a ceramic bond as low as 1500°F and gives a *deeper bond* at normal burn-in temperatures—with no formation of fluids.

Because Permanente 165 has a higher MgO content, *higher refractoriness* is retained longer under operating conditions. *High density* is insured by accurately-sized, pre-shrunk periclase grains.

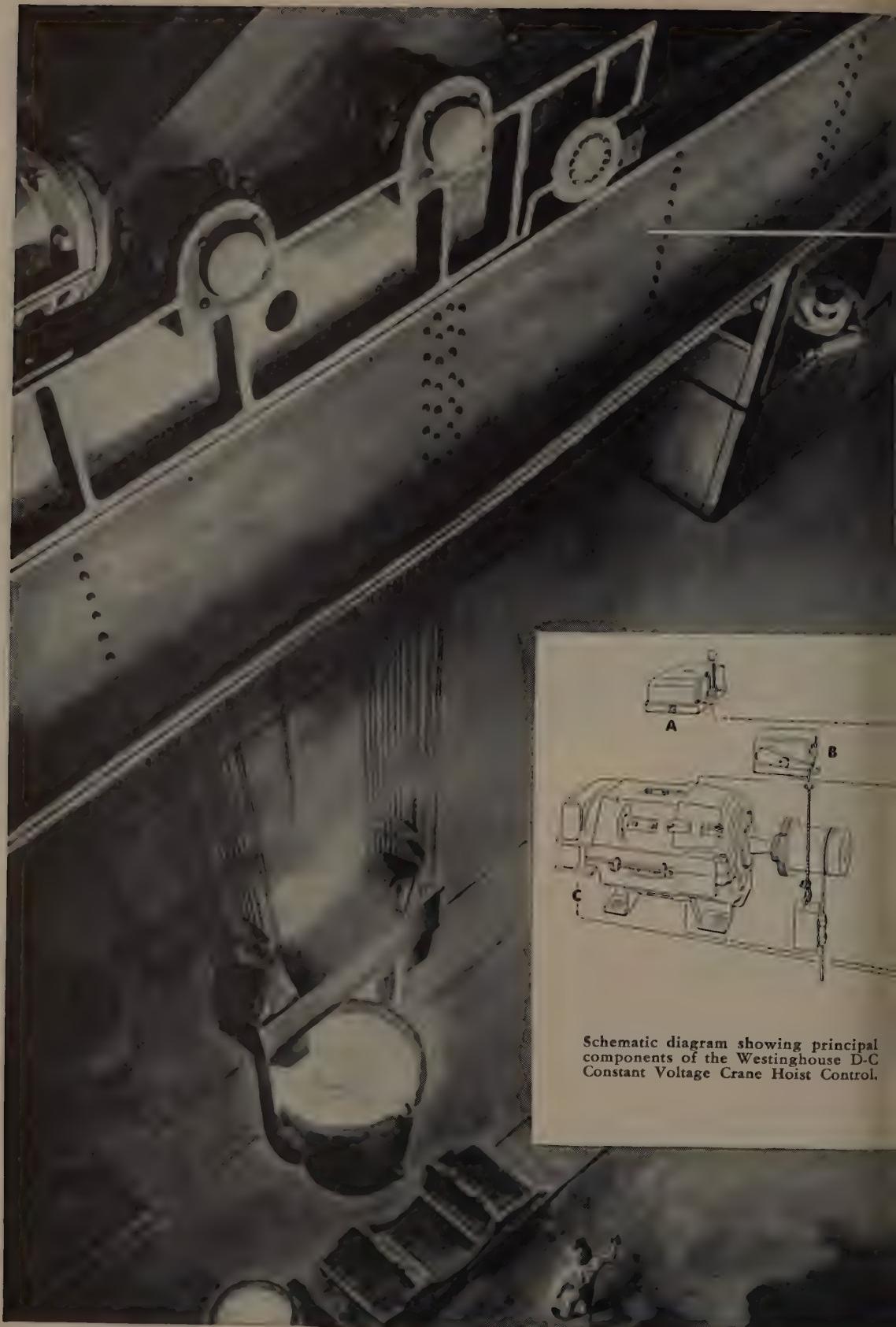
This means you get a better bottom that requires less time and materials for repair, with far less danger of costly breakthroughs.

YOUR Kaiser refractory engineer will give prompt attention to your refractory problem —will offer, where desired, research, design and installation service to give you maximum production most economically. Write for descriptive literature on Permanente 165 and on the companion ramming mix, Permanente 84. Principal sales offices: *Chemical Division*, Kaiser Aluminum & Chemical Sales, Inc., 1924 Broadway, Oakland 12, California. First National Tower, Akron 8, Ohio.

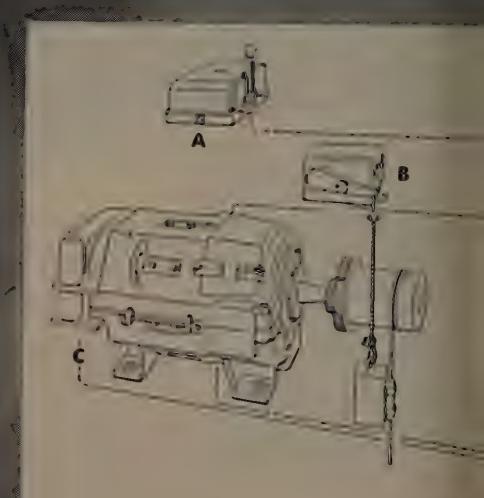
Kaiser Chemicals

Pioneers in Modern Basic Refractories

Basic Refractory Brick and Ramming Materials • Dolomite • Magnesia • Magnesite • Alumina • Periclase



Schematic diagram showing principal components of the Westinghouse D-C Constant Voltage Crane Hoist Control.



MILL RATED muscle for heavy hoisting

All crane hoist control must have the stamina
of ceaseless beatings. It must be built of compo-
nents that are mill rated . . . that keep functioning
despite exposure to dust, dirt, heat, cold and
time-clock hard service.

Westinghouse D-C Constant Voltage Crane
control meets these requirements. It is built
up to the daily abuse found in most steel
operations. Heavy-duty, mill-type electrical
component is used throughout. The Type M con-
tactor and series-wound, 600-series, d-c motor

are mill rated. Dependable operation is further
assured by the basic simplicity of the control system.

OPERATING CHARACTERISTICS ARE COMPLETE AND FLEXIBLE

Loads Slip Into Place due to proper proportioning
of speed increments between master switch points
and selection of correct resistor connections.

Slow-Speed Hoisting Is Available with empty
hook. In lowering, suitable kickoff torque is obtained
with careful resistor design enabling the motor to
reach steady-state speed quickly without overshoot.

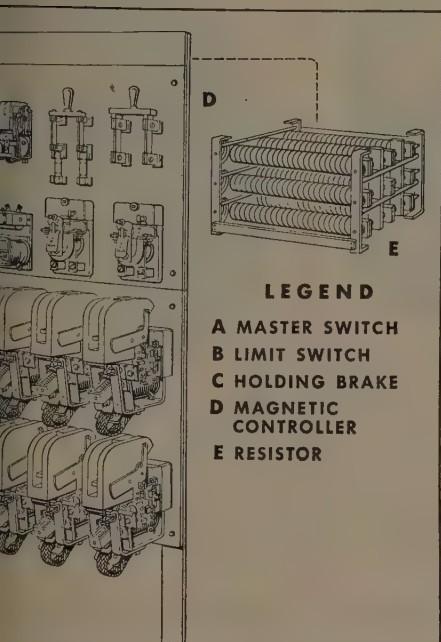
High Lowering Speeds Are Available when re-
quired. The high-speed lowering point has an inde-
pendent adjustment to facilitate closer control at
these high speeds.

Standard Control Panel contains only nine con-
tactors and four timing relays in addition to protec-
tive equipment. All are front mounted for easy accessi-
bility. All are standard units.

New Heavy-Duty Contactors and a combined
control system and resistor design, that prevent ex-
cessive current peaks during transitions or while
plugging, prolong equipment life.

Get this Descriptive Booklet B-5420

Full descriptive information on all com-
ponents of the Westinghouse D-C Constant
Voltage Crane Hoist Control is contained
in this free booklet. Your Westinghouse
representative has a copy for you. Or, you
can get a copy by writing direct to: Westing-
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YOU CAN BE SURE...IF IT'S
Westinghouse



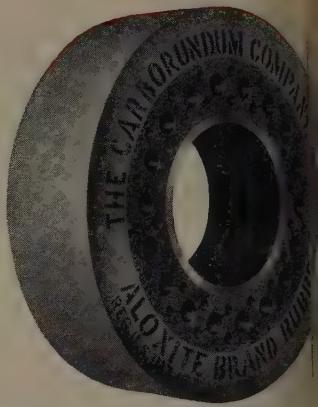
2
pages of
HELPFUL
COST
CUTTING
IDEAS
for **YOU**



"**GREEN-GRIT**" silicon carbide wheels in vitrified bond put keen edges and fine finishes on carbide tipped tools—to close tolerances. Recommended gradings for offhand and surface grinding, wet or dry: rough, GC60-H11-VR; finish, GC100-G5-VR.



NEW "PORT-A-BELT" Grinding Attachment quickly converts any horizontal portable grinder to a belt grinder. It's light—compact—easy to attach. It's a natural for any metalworking shop concerned with die and mold grinding, weld cleanups, edge breaking, contour finishing. Often eliminates 2 or 3 operations.



NEW RESILIENT FEED WHEELS provide ideal in centerless grinding of armatures and other work requiring light but even pressures. Wheels are standard A 80-R2-R grading, with specially designed resilient rubber center. They'll save money for every centerless user.



NEW R3 (Rubber) BOND RACEWHEEL lowers costs in the bearing industry. It cuts cool, holds form, reduces regrinds and rejects. One wheel often replaces tandem mountings. You'll get far more output per wheel, too.

...from **CARBO**

TRADE

"Carborundum", "Aloxite", "Green-Grit", "Red-I-Cut", "Fastcut", "Port-A-Belt", and "MX" are trademarks of The Carborundum Company, Niagara Falls, New York



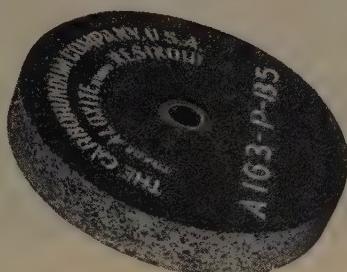
CUT" Pad 85 Assembly now lets wet sanding with discs, a new finishing method that better finishes in far less time. Complements the "FASTCUT" Pad Assembly for dry disc sanding—**far cost-cutter for you!**



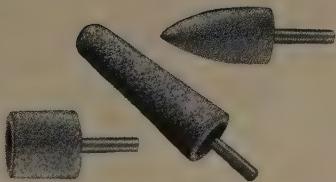
CUTTING OFF WHEELS—12 to 20 times faster than steel—produce smoother cuts at cost than other, conventional, tools. Rubber bond for wet cutting; resinoid bond for dry, "MX" free hand... CARBORUNDUM the right wheel for any metal-non-metallic cut-off job.



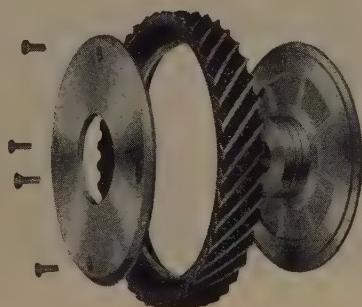
"RED-I-CUT" Waterproof Paper has revolutionized wet sanding operations in thousands of shops. With its new flexible backing and a new resin bond, you can confidently expect it to deliver a faster cut, a better finish, and up to 50% longer useful life on production runs.



RUBBER BUSHED WHEELS, used with rubber washers, are being widely adopted because they reduce vibration to a minimum in portable grinding. Results: less operator fatigue, greater output and longer wheel life. Every user of portable equipment should investigate these cost-cutting wheels.



V1 BOND, outstanding performer in internal grinding, is now saving money for users of mounted wheels and points. Why? They last longer, cut faster, hold form better, because V1 Bond is stronger, free-cutting. And for quality of finish obtained, they're unsurpassed.



"T-61" UNIVERSAL HUB CONTACT WHEEL ASSEMBLY now combines economy of longer belt life, achieved by serrated wheel surface, with equally sharp saving in wheel replacement cost. Changeable "tire" idea multiplies wheel versatility too. Hundreds of abrasive belt users are enthusiastic about results.

You profit when you STANDARDIZE on Abrasives by CARBORUNDUM

When you do business with the only supplier of all the types of abrasives there are, certain unique advantages are yours to enjoy:

FIRST, a control of abrasive quality which is constant, identical, and dependable—no matter what abrasive method you use.

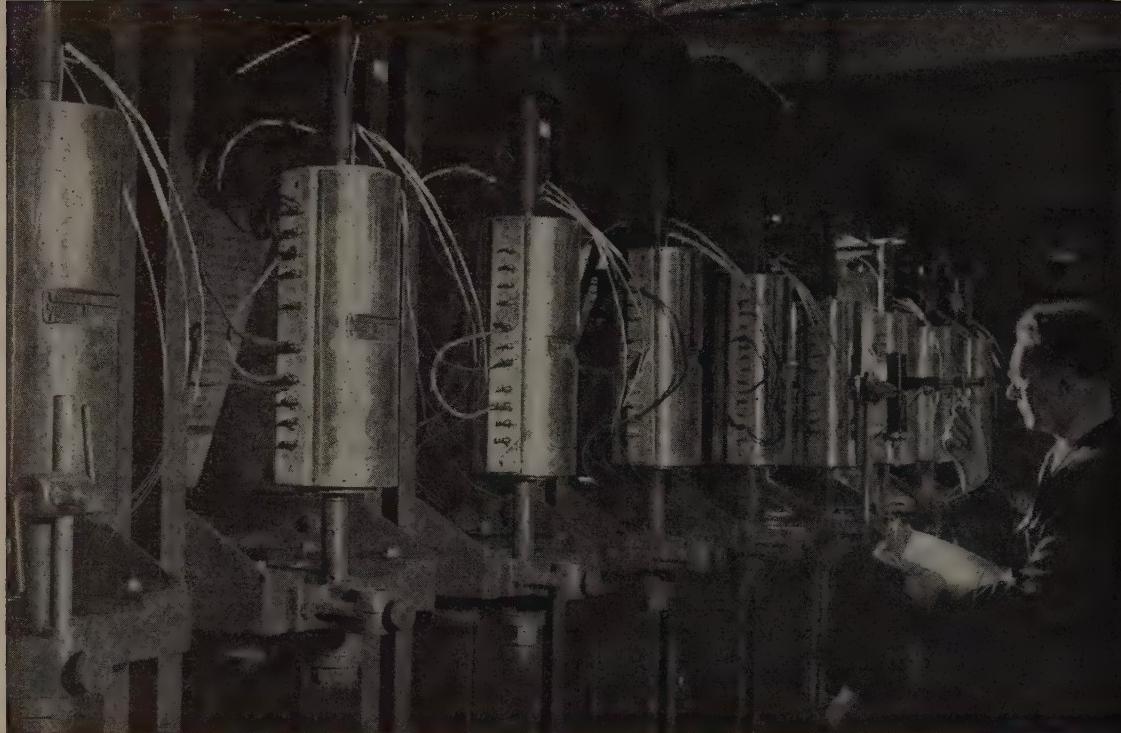
SECOND, a technical advisory service which brings to your attention every new development in the entire field of abrasives.

THIRD, a refreshing approach to your abrasive problems which only a complete-line source, assuming complete-line responsibility, can offer. Recommendations from CARBORUNDUM are free from bias, completely objective...thus entirely dependable.

For further information on any of the ideas shown here, call your CARBORUNDUM salesman or distributor, write Dept. S 80-31.

CARBORUNDUM

...the ONLY source for EVERY abrasive product you need



Where Metals Give Up Their Secrets

Suppose you want a metal to combat some particularly destructive set of service conditions.

Here's a man who can help you.

He's one of INCO's staff of engineering specialists and metallurgists. His primary responsibility is to determine how well a material qualifies for its intended use.

Often, he can find an answer to your problem among the metals and alloys he works with daily. He can tell you which of the INCO Nickel Alloys offers the most promising answer to your problem—and he can tell you just as frankly when a problem is outside the known scope of what the INCO Nickel Alloys can do.

Suppose, for example, you were caught in a predicament where you

had to find a corrosion-resisting material with greater strength and hardness than you can get even in Monel®. He can name you an age-hardenable alloy that has the same excellent resistance as Monel *plus* mechanical properties you would expect to get only in a heat-treated alloy steel. Non-magnetic, too, down to -150° F. below zero. It is "K"® Monel, one of the INCO Nickel Alloys.

Maybe high temperatures complicate your problem. In that case he would study the service conditions and weigh out all the possible answers to your problem. Inconel "X"® is just one of a number of heat-resistant INCO Nickel Alloys that include Inconel®, the Nimonic, and the new Incoloy®—each one with different characteristics that make it best

suitied for different types of high temperature problems.

Remember this man. He can tell you where nickel alloys may safely be used to replace others containing even more critical metals. He can save you a lot of trial-and-error experimentation.

If you are wrestling with a problem that involves metals, let him lend a hand. There's no charge. If one of the INCO Nickel Alloys cannot solve your problem, he may be able to recommend another metal that will. A note to "Technical Service" at this address will receive prompt attention:

THE INTERNATIONAL NICKEL COMPANY,
67 Wall Street, New York 5, N.Y.

Inco Nickel Alloys

MONEL® • "R"® MONEL • "K"® MONEL • "KR"® MONEL • "S"® MONEL • NICKEL
LOW CARBON NICKEL • DURANICKEL® • INCONEL® • INCONEL "X"® • INCOLLOY® • NIMONICS®



January 12, 1953

The Budget: It Will Be Cut

Mr. Truman's budget request for \$78.6 billion in fiscal 1954 will be unrecognizable by the time the new Congress and the Eisenhower administration get through with it. The general will let Congress know about his fiscal ideas beginning in April when he plans to send a series of budget messages to the legislators. His first full budget won't come until a year from now. The major changes in the Truman budget requests will be toward cutting it to meet the estimated \$68.7 billion in tax receipts.

Decontrol Pressure Mounts

Nor can you expect the new administration to act hastily on decontrol of materials, wages and prices. That's despite ever-mounting pressure for such action. The latest comes from the House Small Business Committee (82nd Congress) which urges that CMP for steel be dropped Mar. 31 instead of June 30, the date most Washington defense planners now favor. The group recommends that a program to end wage and price controls be worked out promptly.

Bare-bones Economy

Civilians will live in a bare-bones economy if we get into another world war. That is the condition on which the Office of Defense Mobilization is predicating its plan for creation of a full mobilization base (pp. 43, 45). Defense Boss Henry H. Fowler points out that in World War II the U.S. never devoted more than 45 per cent of its economic strength to fighting the war. The United Kingdom got up to 50 per cent and Germany for a time stood at 55 per cent. What the U.S. percentage would be in case of another war, Mr. Fowler refuses to estimate, but the inference is that it will be much higher than 45 per cent.

More Stockpiling

The national stockpile of 75 strategic materials has reached only slightly more than half its current objectives. Even so, the dollar value of materials on hand has almost doubled—rising from \$2.1 billion in mid-1950 to \$3.8 billion at the end of 1952, after adjusting for price changes. As the materials supply situation improves in 1953, stockpiling will increase. That means no slack in demand for any of the 75 materials is likely to develop over the coming year.

On the Road to More Highways

Structural steel allotments to road builders this spring will permit "the highest rate of highway construction ever experienced in the U.S." DPA said that in a breakdown of its 1,692,000-ton allocation of structural steel for the second quarter. Highway contractors get 185,000 tons, 68 per cent more than they got in the third quarter of 1952. They'll need that much and more. Besides the paved roads and streets of America that must be rebuilt and the new ones required,

half of the nation's 3.3 million-mile highway plant is still unpaved.

Canadian Prospects Promising

Watch for the Canadian boom to continue in 1953. Total capital investment in 1952 was \$5.2 billion, 8 per cent over the 1951 volume, and it's expected to climb still more over the coming year. Canada's exports will also probably rise. In the first nine months of 1952, the dominion's shipments to countries other than the U.S. showed an increase of 34 per cent over the like period of 1951.

Working Capital: Too Low?

Working capital of U.S. corporations is increasing, but the continuing inadequacy of capital is considered the number one problem facing credit and financial executives in 1953. A survey by the National Association of Credit Men shows that even taxes ranks second to the problem of capital positions of many companies. Corporate net working capital was an estimated \$86.9 billion as of last Sept. 30. The increase from last June 30 exceeded \$1.2 billion.

Industrial Property Prices Hold

You can anticipate stable prices and continuation of the current rate of sales for industrial property during the next six months. So predicts the National Association of Real Estate Boards. In a survey of the boards, some 75 per cent expect prices on one and multiple-story industrial structures to remain steady for the next six months; only 6-10 per cent forecast lower prices.

Straws in the Wind

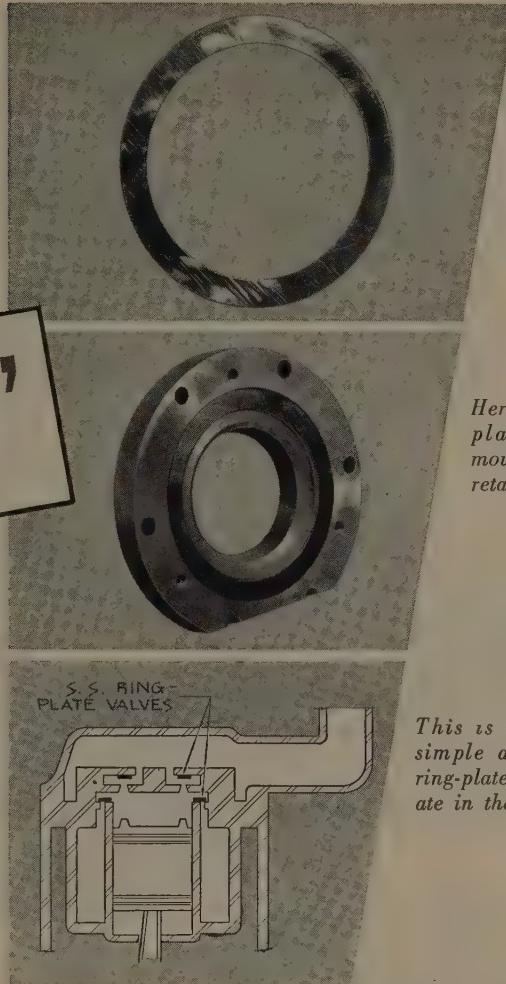
David J. McDonald will be unopposed in a Feb. 10 election as president of the United Steelworkers, but look for lively contests in the voting for district directors . . . National Securities & Research Corp. predicts a \$1 billion increase in 1953 corporate net earnings to bring the total to \$18.5 billion . . . Export-Import Bank has approved a loan of \$67.5 million to Industria E Comercio De Mineros of Rio Janeiro—in which Bethlehem holds a partial stock interest—to enable production of 5.5 million tons of high-grade manganese ore on a Defense Materials Production Administration contract running to June 30, 1962 . . . Republic Steel Corp.'s Berger Mfg. Division spent \$1 million on retooling to enter the steel kitchen market whose potential is estimated at \$200 million yearly . . . Colorado Fuel & Iron Corp. paid a reported \$23 million for Roebling's.

What Industry Is Doing

Delivery dates will improve in 1953 (p. 37) . . . Tool and die firms expect to continue this year at the \$700 million level they achieved in 1952 (p. 38) . . . The Department of Commerce sees a continuing high economy that will push gross national product to \$365 billion in 1955, compared with \$350 billion expected this year (p. 39) . . . National Securities Resources Board approves of most of the Paley report recommendations on materials utilization, and the joint study may serve as the basis for Republican policy (p. 40) . . . Gage deliveries improve, but a shortage still exists (p. 41).

"17-7 PH"

**Replaces
Carbon Steel
In These
Ring-Plate Valves**



A ring-plate type valve for freon compressor made of Armco 17-7 PH Stainless Steel strip.

Here is how the ring-plate type valve is mounted and held in its retaining plate.

In a well-known line of freon compressors, Armco 17-7 PH Stainless Steel has proved its superiority for ring-plate valves and now replaces the carbon steel formerly used.

These rings, Armco 17-7 PH strip, 0.040-inch thick, is purchased in the annealed condition. After blanking, only a single low-temperature heat treatment is required for the desired hardness, since cold-working has already strengthened the material. Resulting yield and tensile strengths are very high. This is another case where physical characteristics and low-temperature heat treatment of this precipitation-hardening stainless steel produce a better product in fewer operations. Line check-valve plates and pump-valve discs are among other related applications that have been found most successful.

PH Grades

Armco 17-7 PH is made in sheets, strip, plates, bars and wire. Single and double low-temperature heat treatments are employed in hardening. There is also a special bar and wire grade, Armco 17-4 PH, that requires a single low-temperature heat treatment. If you need good corrosion resistance and high strength combined with ready workability, investigate these two Armco Precipitation-Hardening Stainless Steels. Your post card will bring you complete information.





BIG Magnet Pays Off with BIG Lifts

TYPE SW ALL-WELDED LIFTING MAGNET HAS THESE IMPROVEMENTS

- 1 Leads protected at magnet-end.
- 2 If damaged, outer leads replaceable without entering terminal-boxes.
- 3 Solderless clasp-type connectors.
- 4 Stronger welds—2 to 5 times stronger.
- 5 ECAMICA board (new EC&M development) insulates coil layers.
- 6 New, purer asbestos, strengthened by EC&M No. 281 impregnation, insulates between turns.
- 7 Coil windings locked against movement.
- 8 Thicker pole shoes with high shoulders.
- 9 Stronger manganese bottom plate.
- 10 Two terminal chambers—coil-leads on outside of coil.

"Best Magnet We Ever Had—and We've Had Lots of 'Em!" That's what Abe Knofsky, Warren Scrap Iron and Metal Co. of Warren, Ohio, says . . . also, "Its greater lifting capacity means *quicker lifting* and *lower cost per carload*."

This company uses a 55-inch Type SW Magnet, on a 30-ton Browning Crane and Shovel Type ML-300 Crane with 60-foot boom, for loading various kinds of scrap into railroad cars.

EC&M Improved Design Type SW ALL WELDED Magnets give *greater lifting capacity per dollar invested*.

IT WILL PAY YOU TO INVESTIGATE THEM

ASK FOR NEW BULLETIN ➤

900



THE ELECTRIC CONTROLLER & MFG. CO.

2698 EAST 79TH STREET

CLEVELAND 4, OHIO



January 12, 1953

Truman's Seven Years

President Truman's state-of-the-union message to Congress last Wednesday differs from its predecessors in several respects. It was read by clerks instead of by the President. It contained no recommendations to Congress, as had previous messages. Instead of covering the events of a single year, as had been customary, it spanned all seven years of Mr. Truman's custodianship.

In this respect it probably was intended to be a valedictory address. From the evident care with which it was written, it is reasonable to assume that Mr. Truman hopes that it will stand as a historical account of the accomplishments of his administration. If, as has been suggested by some critics, the President has stressed the good points and left out the bad ones, that is his right.

In the future, when the events of Truman's seven years can be appraised more dispassionately than is possible today, debate probably will center upon the manner in which the administration dealt with various crises which confronted it. For instance, would more intelligent action in the Far East in 1946, 1947 and 1948 have prevented the attack on South Korea in 1950? Would or would it not have been possible during Truman's years to scale down the national debt more than has been done?

Also, was there any valid excuse for permitting the purchasing power of the dollar to slip from about 72 cents when Mr. Truman assumed office to less than 53 cents when he steps out? In view of the great cries that have emanated from Washington during the past seven years for more power and money for the President to enable him to combat inflation, one is almost forced to conclude that use of these powers and funds actually contributed to the decline of the purchasing power of the dollar. Eventually history will provide answers to these and other questions.

Meanwhile, a new administration will take over on Jan. 20 and will try to apply solutions to some of these problems which the old administration either ignored or failed to solve. The nation eagerly awaits new thinking, new leadership and new action.

EDITOR-IN-CHIEF

IS FTC BOONDOGGLING? On Dec. 24, 1952, the government issued a 157-page document entitled "Report of the Federal Trade Commission on the Control of Iron Ore for the

Antitrust Subcommittee of the Committee on the Judiciary of the House of Representatives." It goes into great detail as to the iron ore holdings of United States Steel, Bethlehem, Repub-

lic, Jones & Laughlin, Youngstown, National Steel, Inland, Armco and Wheeling. It also describes the operations of Cleveland-Cliffs, M. A. Hanna, Butler Bros., Pickands Mather and Oglebay Norton.

In its summary, the report states that "the open market is virtually absent," that the ore merchants today are primarily managing agents and that "most of the residual ore that remains after distribution on the basis of ownership ties is committed to long-term contracts well in advance of production. Much of this contracted ore goes to the nine major and a few of the smaller integrated companies. The spot market is a thing of the past."

If this means that FTC thinks there is a monopoly in iron ore and that a small operator seeking ore would have difficulty obtaining it, then the report is far-fetched. That FTC went to all the trouble to make this report makes one wonder whether it lacks enough real work to keep it busy.

* * *

SCRAP MEN CONFIDENT: Early this week members of the Institute of Scrap Iron & Steel Inc. in annual convention are observing the silver anniversary of its founding. On this occasion they can be proud of the excellent manner in which their institute has served the nation during the past quarter-century and of how the scrap industry has met crisis after crisis during this period.

Fortunately the anniversary comes at a time when steel mills are fortified with a 6-million ton stockpile of scrap, the largest in years. But scrap people are not complacent (Insert following p. 44). They realize that demand in 1953 may be unprecedented. To provide "more scrap for more steel" will be a constant challenge to them as they go into the second quarter-century of their institute's activity.

* * *

OFF TO A FAST START: Business is entering the new year with more vigor than was the case a year ago. This publication's index of industrial activity for the week ended Jan. 3 (p. 55), stands at 207 per cent of the 1936-1939 average, compared with 187 per cent in the corresponding week a year ago.

Steel output in the week ended Jan. 10 was 2,213,000 tons—a gratifying tonnage. Electric power output is up about 6 per cent from that

of a year ago. Revenue freight car loadings exceed last year's volume by 7 per cent. Automobile production in the week ended Jan. 3 was more than double that of the comparable 1952 week and in the week ended Jan. 10 it was 45 per cent ahead.

This early vitality is encouraging. It reflects a continued buoyant demand and a psychological uplift generated by faith in the incoming administration in Washington.

* * *

REWARD FOR INGENUITY: In discussing recent progress in the development of porcelain enamel coatings, W. S. Barrows, president of Barrows Porcelain Enamel Co., suggests that ingenuity is an important factor. Although progress has been accelerated by marked improvements in techniques and in the coatings themselves (p. 72), it has been the ability of enamel operators to overcome baffling difficulties by dint of hard experience that has brought the industry to its present status of accomplishment. Numerous coating applications that were considered "impossible" only a few years ago today are routine operations.

This improvement is timely because it places the porcelain enamel industry in a strong position to cope with problems thrust upon it by the nation's jet engine program. Porcelain enameled combustion chambers for jet engines are successfully withstanding the tremendous thermal shock resulting from a shift in temperature from 1800°F to -60°F in a few seconds!

* * *

OUR VULNERABLE SPOT: An incongruous aspect of our nation's accomplishments is that with all of our successes in organization, management, technology, etc., we still are backward in operating ships on the high seas. John A. Penton, founder of the company which publishes this periodical, spent a lifetime crusading for an American merchant marine worthy of the name. He met with rebuff after rebuff.

Today the government's negotiations as to the amount of subsidy to be granted in the cases of the *S. S. Independence*, *Constitution* and *United States* (p. 42), may have an important bearing upon the future development of American shipping. Judging from past experience and from present attitudes, many years may pass before we evolve a sound merchant marine policy.



Whose cheese is being divided?

Two cats could not agree on fair division of a tasty cheese. "Let's go to the monkey," said "He is all-wise and can divide our cheese y." So to the monkey they went.

The monkey immediately broke the cheese only and judicially put the two pieces on the of his balance. But one was slightly heavier. shrewdly nibbled that piece a bit and put it back on the scales. Now it was the lighter piece. He bit off some of the other piece only to find he lighter. Thus while the two hungry cats watched, the monkey kept taking bites of the cheese, first one piece, then the other, until finally the cheese had almost disappeared.

"What's left is too small to divide," sagely pronounced the monkey, as he popped the remaining morsels into his mouth.

Observers of the American scene see a direct parallel between the record of federal taxation and this ancient parable of the trusting cats, the greedy monkey and the cheese. Business and the individual citizen have been content to trust government to rule on the disposition of their earnings. And Uncle Sam keeps taking bite after bite out of the shares of both individual citizen and business.

Already government bites are so large as to severely penalize citizens and business alike. If allowed to continue, it will seriously impede further industrial progress and growth, stifle initiative and threaten the strength of our free enterprise system. Beware the day—goal of the socialists among us—when the monkey says, "What's left is too small to divide."



The Youngstown Sheet and Tube Company

General Offices--Youngstown 1, Ohio

Export Offices--500 Fifth Avenue, New York

MANUFACTURERS OF CARBON ALLOY AND YOLOY STEELS

RAILROAD TRACK SPIKES - CONDUIT - HOT AND COLD FINISHED CARBON AND ALLOY BARS - PIPE AND
SQUARE PRODUCTS - WIRE - ELECTROLYTIC TIN PLATE - COKE TIN PLATE - RODS - SHEETS - PLATES.

JOB LOTS...LARGE OR SMALL

No Problem at American Locomotive

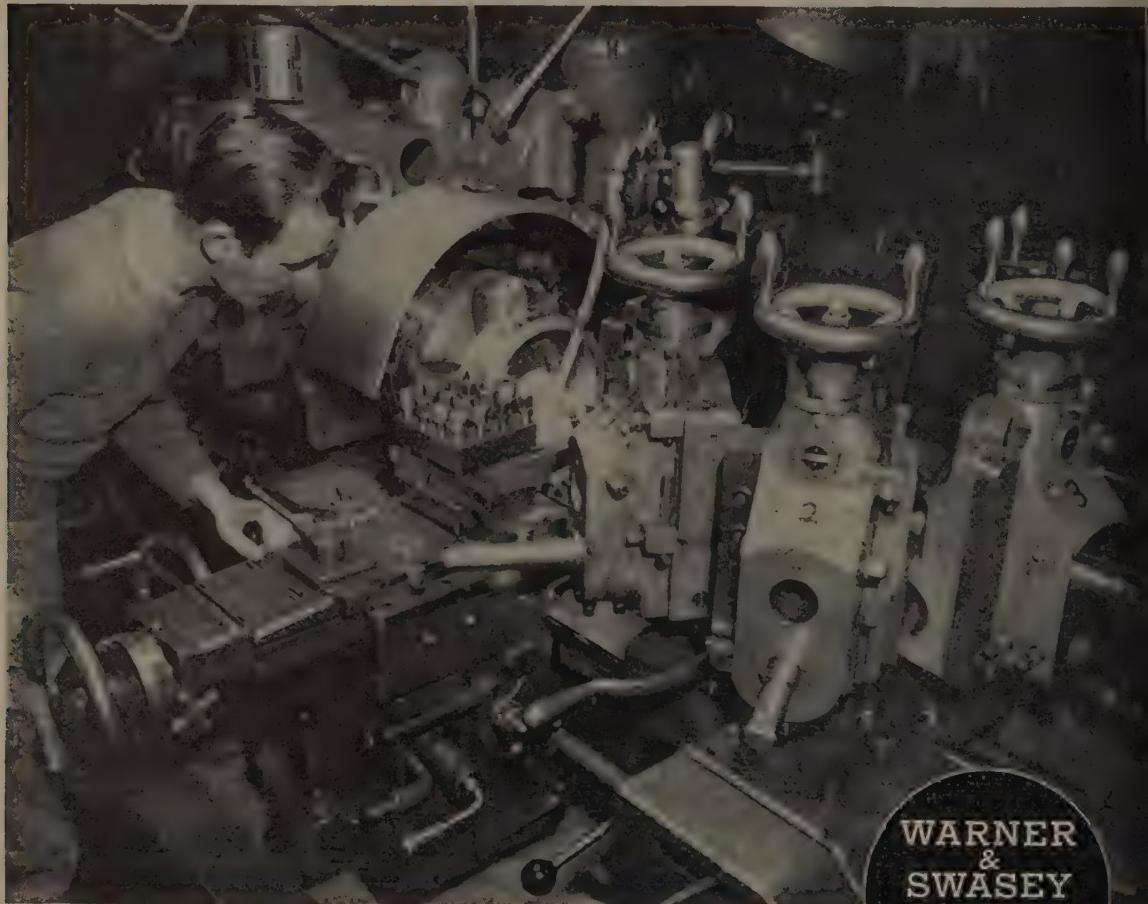
WHEN YOU must machine a wide variety of jobs in various lot sizes—sometimes even single pieces—you must use turret lathes on which jobs can be set up quickly, changed with little downtime. American Locomotive has found they can handle these jobs profitably on Warner & Swasey Turret Lathes set up with Standard Universal Tooling.

At the Diesel Engine Division in Auburn, New York, six different model Warner & Swaseys are used on a variety of jobs ranging from lots of 6 to 500 pieces. Repair parts are also handled on these machines. These turret lathes turn everything from gray iron castings to tough alloy steels and hold limits of .0005".

American Locomotive experi-

ence proves jobs can be switched quickly on these Warner & Swasey. Warner & Swasey power handles heavy multiple cuts. Warner & Swasey speed permits most efficient use of carbide tools. Right Warner & Swasey design guarantees lasting accuracy.

Warner & Swasey Turret Lathes have proved themselves profitable in handling precision jobs of many different kinds in thousands of plants—on job lots, large or small. So before you invest in a new machine tools, call in your nearest Warner & Swasey Field Representative and find how Warner & Swasey can improve productivity and build profits for you.



A steel forged drive gear for Diesel locomotives being machined on a Warner & Swasey 1-A Turret Lathe. Limit: .0005" on O.D. of hub. Pieces in lot: 20. Repair parts for locomotives are also made on this machine.

**WARNER
&
SWASEY**
Cleveland
PRECISION
MACHINERY
SINCE 1880

Delivery Dates for Components

(NUMBER OF WEEKS FOR DELIVERY)*

COMPONENT	CURRENT QUARTER	LAST QUARTER	YEAR AGO	OUTLOOK
Antifriction Bearings	0-26	0-26	3-26	Improvement
Copper Wire	0-12	0-12	0-12	No Change
Die Castings	6-8	4-5	8-10	Slight Improvement
Fasteners	0-6	0-8	2-12	Improvement
Forgings	3-4	4-8	8-28	Little Change
Gears	0-12	0-12	0-26	Some Improvement
Gray Iron Castings	1-4	1-5	8-12	Some Tightening
Malleable Castings	2-8	2-8	10-14	Little Change
Mech. Rubber Goods	8-10	8-10	8-10	No Change
Nonferrous Castings	4-6	4-8	4-8	No Change
Screw Mach. Products	1-20	1-20	1-26	Some Improvement
Small Motors	0-12	0-20	4-20	Little Change
Stampings	1-6	1-6	12-14	Some Tightening
Steel Castings	4-14	6-14	6-36	Some Improvement
Weldments	8-26	8-26	8-52	Some Improvement

*Figures apply when patterns, tools and/or dies are available and when normal quantities of typical jobs are ordered. Exceptions, therefore, are to be anticipated.

53: Back to Normal

INDUSTRY'S going to get the components quicker to assemble a d output in 1953.

Days point that way as mate- ease and expansions are com- d. Imponderable as yet is the ex- expect the heat to be felt by tivity. Last twinges of the steel e should vanish by second er with aluminum and copper d for easing supply.

greatest Year? — Infant 1953 well mature into the greatest in industry's history, stands ed of a robust life. Mirroring ent of vigorous activity are onents suppliers who see full, unpressed, production ahead.

Those with unduly long delivery dates see a return to shorter waits, while those now offering abnor- mally short delivery owing to idle capacity see a pickup in business as the year starts with return to the longer normal delivery periods.

That was the feeling as STEEL polled the components makers, but there will still be a few sour spots in the apple-pie normalcy ahead. Here are some of the things to watch for:

Antifriction Bearings — Tightest are the smaller precision bearings due to military demand, increased use by industry. Roller bearings also require plenty of lead time as alloys lag added military de-

mand. With nickel slated for moderate easing in 1953, expect some improvement in bearing deliveries but not back-to-normal.

Die Castings — Higher auto and appliance production lengthened delivery dates as the fourth quarter drew to a close, and that situation should carry through the first quarter. Most die-casters see easing delivery by mid-year and beyond as backlog are met.

Fasteners — Deliveries on normal sizes of bolts and nuts now average half the time required a year ago. Still tight are larger sizes due to shortages of heavy bars and military demand. Little improvement is expected.

Forgings — Deliveries are now being made in four weeks on items that a year ago were being prom-

ised in eight weeks to seven months. One reason given was scare buying in anticipation of a forging-quality steel shortage with military shell procurement. Forging buyers are now more inventory-conscious but the military could throw the forging delivery picture out of focus.

Gears—Tightest are smaller sizes in highest use and larger gears which must be specially made. Roller chain is also slow in delivery due to alloy shortages. Added steel output and alloy easing should help delivery by last half.

Ferrous Castings — Gray iron founders are finding business uncomfortably slow in some cases. As a result, deliveries are phenomenally quick—often in less than two weeks. Malleable castings are only slightly more extended. Tightest are steel castings with delivery promises running up to 14 weeks, still a marked improvement over year-ago figures. Steel castings backlog should decline slightly during the year with improvement in delivery dates, while the hoped-for pickup in gray iron and malleable castings would tend to extend delivery.

Screw Machine Products—Low tolerance, small diameter work can be had in one or two weeks. Diameters over 1 inch run from eight weeks to six months, due both to bar shortages and Ordnance purchases. Some improvement is in prospect as capacity is increased and bar supplies ease.

Stampings—Bonanza to stampers has been the improving sheet supply. Deliveries are now possible in half the time required a year ago in many cases while tapering government work helps free capacity. The upswing in auto and appliance production is now cramping facilities in some areas, and a moderate tightening in delivery dates is expected as low year-end inventories are rebuilt.

Fourteen Materials Ease in 1952

Progress in expansion of materials production resulted in the removal of 14 metal items from the list of "most critical" since Dec. 28, 1951, the "List of Basic Materials and Alternates" reveals. Issue No. 10 of the Defense Production Administration publication, released



CAGE DIES STACKED HIGH
... looks like another good year

Dec. 28, 1952, lists the status of critical materials and changes within the past year. It includes over 300 principal items.

The 11 most critical materials at present are: Titanium; cobalt; columbium; molybdenum; nickel; tantalum; heavy castings (3000 pounds or over) of gray iron, gray iron alloy and carbon; nickel bearing stainless steel; diamond bort.

The 14 items eased from the most critical list are: Aluminum, beryllium, selenium, platinum, copper, lead, tin, zinc, tungsten, cold-drawn and hot-rolled alloy steel bars, heat-resistant alloy steel castings, plates and structural shapes.

RFC Cites 1952 Profits

Reconstruction Finance Corporation had a good year in fiscal 1952, spokesmen say. Sufficient amounts were earned from lending activities to cover all expenses of operation and to pay a dividend of \$12.2 million on the corporation's capital stock of \$100 million held by the U. S. Treasury.

Of the dividend, \$10,853,671 represented net earnings in fiscal 1952, as compared with net earnings of \$7,618,337 in 1951. Lending activities expanded similarly. During fiscal 1952 the corporation approved 3851 loans totaling \$378.2 million. In the same period in 1951 it made 3271 loans which amounted to \$290 million.

Tool, Die Boom Continues

New developments and federal controls will help offset any decline of defense work

CONTRACT tool and die industry anticipates another year of growth in business which may be extended two years. Growing demand for special tooling for civilian products is expected to counteract any foreseeable decline in tooling for defense program.

Shipments by the industry in 1952 are estimated to be at least \$700 million, or more than double the 1947 total of about \$300 million. It would be difficult for the industry to further expand its output, says George S. Eaton, executive secretary, National Tool & Manufacturers Association, Cleveland.

Lack of highly skilled mechanics is the great obstacle in the way of much further increase in output. Shops have added all competent mechanics they can find, have trained others through apprenticeships, and are working long hours, many between 50 and 55 hours a week. Some men are maintaining even longer working schedules.

Orders High, But — Backlog of unfilled orders continues at high levels, although there was a gradual decline during most of the year. Toward the close of the year the backlog represented about three months' operations at current rate.

In the majority of areas, defense work accounts for 50 to 70 per cent of the volume of special tooling now being turned out by the contract shops.

With continual changes in craft design, guided missile development and utilization of electronics in many new ways, there is bound to be a great need for special tooling to adapt the production-line machines to the manufacture of these new or altered products.

Also, as controlled materials become more plentiful, manufacturers of civilian goods will seek the special tooling required for the production of new models which will be required to meet increased competition.

GROSS NATIONAL PRODUCT

(IN BILLIONS OF DOLLARS ADJUSTED FOR 1951 PRICES)



Estimated by Department of Commerce. Gross national product is value of all goods and services.

Business Outlook: Good Through 1954

Department of Commerce predictions anticipate a sunny 1953 for businessmen followed by a fair 1954. Scattered showers may arise when defense orders fall off in 1955

TINUING to rise steadily through 1953 and probably 1954, America's gross national product will suffer from a moderate dip in capital expansion this year. This is the opinion expressed in a report of the Department of Commerce, made public by Secretary Charles Sawyer.

Roady Rise—As the accompanying chart shows, the report, "Market after the Defense Expansion," realistically foresees a constant increase in American productivity and the gross national product to a 1955 level of 8 per cent above 1952. Most businessmen predict a healthy 1953, and the Commerce department expects prosperity to spill over into 1954 with regard to a possibility but by no means probable.

Projections for this year revolve around the prospective rise in defense expenditures, the satisfactory inventory position of business, the relaxation of controls and the likelihood of a serious strike. This year's outlook is uncertain, several straws in the breeze make a recession doubtful. Federal, state and local government purchases should increase in 1954. Large corporations already expect to spend 90 per cent as much

on plant and equipment next year as this year.

Slight Dip—Capital investment plans of 2000 firms surveyed by the Commerce department show programs of \$26.3 billion in 1953, slightly below 1952's \$26.9 billion. Although the bulk of our mobilization base may be completed (See page 45) the demand for productive facilities is stimulated by high output, income and employment. Many consumer goods industries hampered by materials allocation restrictions plan to increase expenditures in 1953. Companies interviewed by the department plan capital outlays in 1954 and 1955 at 85 and 80 per cent, respectively, of the 1952 volume. This dip may be made up by future industrial projects.

Defense expenditures will probably rise to an annual rate of \$55 to \$60 billion in 1953 and 1954 if present military goals are maintained. An expected reduction in 1955 to between \$50 and \$55 billion could seriously test the nation's economy. Hence more private markets should be developed by then.

Other offsetting forces might include stimulus to private spending by a lowering of federal

tax rates and a rise in civilian government purchases. In addition, dynamic new industries such as atomic energy, electronics and air transportation may create new business activity to compensate for a falling-off of national defense expenditures.

GE To Build Appliance Plant

General Electric Co.'s plans to build an \$8 million small appliance plant in Tyler, Tex., place that city in the forefront of industrial growth in the eastern section of the state. This project is a strong stimulant to the rapid industrialization which has been under way in the city since 1945. Industrial employment increased 307 per cent from that year to 1952.

Metalworking firms included in the 12 which located in Tyler last year are: Allied Chain Link Fence Co., gates and fences; Glauber of Texas, plumbing fittings and supplies; J. Haynes Match Plate Co., makers of experimental castings for foundries; Park Mfg. Co., metal parts, castings and forgings; Texas Tubular Products Co., plumbing supplies, traps and wastes.

Financing Started for Taconite

Reserve Mining Co. filed a \$148-million mortgage as the first step in financing its Minnesota taconite project. Reserve will mine the ore at Babbitt and process it at Beaver Bay. The company expects first shipment of treated taconite to leave Beaver Bay in 1955.

The Long Look at Materials

The National Security Resources Board proposes legislation to implement some of the Paley report recommendations. The move is toward a nonpartisan national materials policy

THE FINDINGS and recommendations of the National Security Resources Board and the President's Materials Policy Committee (the Paley commission), gathered in a Democratic administration, may form the basis of Republican action during the next four years.

Those recommendations are for specific pieces of legislation to combat rising costs and eventual exhaustion of natural resources in this country and to provide sufficient energy for our expanding economy. The PMPC came up with 78 proposals (for more on the Paley report see June 30, p. 46); the NSRB reviewed them all but suggested legislative action in only some cases.

Two-sided—Many of the proposals are so high on security lists,

they have become bipartisan. Action on other recommendations of the NSRB is contingent upon policy-making political decisions. Those include suggestions for the development "under public and private sponsorship" of hydroelectric power facilities, construction of the St. Lawrence Seaway, a law allowing the Interior department to manage off-shore oil deposits, repeal of the "Buy American" act and elimination of import duties on materials which the U. S. must import in great quantities.

What They Said—Tip-off as to what may happen to key recommendations of the Paley report comes from the reactions of government agencies and the NSRB (see the chart below). The NSRB quizzed the agencies for comments

before sending its report to President.

In general, the agencies agree expanded fact-finding and aid industry in developing mineral sources. Exception is the tax policy which allows percentage depletion as a deduction in the minerals industry. On that point opinion varies widely. The NSRB proposed a committee be appointed to investigate the matter further and report within six months.

Wait Awhile—While there is "general agreement" on the objective of easing tariff restrictions on imported raw materials or semi-finished goods, little will be done with the NSRB recommendations until the Public Advisory Board to the Director of Mutual Security submits its reports on the general international trade policy. Tariffs on materials is considered only a part of the bigger decision. The advisory board is expected to report soon.

Development of hydroelectric power facilities and greater private participation in efforts to derive

PALEY COMMISSION RECOMMENDATION	GOAL	GOVERNMENT AGENCY REACTIONS	NSRB RECOMMENDATION
No. 1	More fact-gathering and analysis to encourage discovery and development of new domestic reserves of critical raw materials.	Agreeable.	Department of Interior should be so instructed.
No. 6	Development of techniques and instruments of exploration for minerals.	Agreeable, but need for interagency co-operation is cited.	No need for additional action. The National Science Foundation is active in this field.
No. 8	Alternate means of leasing federally-owned mineral deposits.	Agreeable.	Legislation should be acted.
No. 12	Retention of the percentage depletion rates now provided in Internal Revenue Code as an inducement to risk capital to enter the minerals industry.	Opinion varies widely, with the Treasury department disagreeing strongly.	Question should be studied further.
No. 37	More geological surveys, preliminary exploration and advice on mining technology for undeveloped areas of the world.	Agreeable.	Legislation should be acted.
No. 45	Permanent legislation eliminating import duty on any industrial material when the U. S. is largely dependent on imports. Repeal of the "Buy American" act.	Agreeable, but cited as only one part of larger tariff problem.	Legislation should be acted.
No. 54	Development of hydroelectric power as fully and as quickly as is economically feasible.	Agreeable.	Funds should be requested from Congress.
No. 70	A permanent stockpile of critical materials.	Agreeable.	Legislation unnecessary this time.
No. 76	Development of the St. Lawrence Seaway.	Agreeable.	Congress should be asked to proceed with the project at once.
No. 78	Continued life for the National Security Resources Board as a policy-maker in the fields of materials, energy and special security problems.	Agreeable, as long as duties are well-defined and do not include fact-finding.	Funds for such activities should be asked of Congress.

tic power from atomic sources received approval of all commanding agencies, as did a recommendation for the development of t. Lawrence Seaway.

necessary — Though theies approved a permanent piling arrangement, the NSRB lot second the Paley report's umendation for legislation to effect. The NSRB says, "The age of the Stockpile Act, and ecent practice of the Congress propriating adequate funds for orurement of materials for strategic stockpile make spe- action unnecessary at this."

The NSRB suggestions included commendation for its own cond life in fact-finding, policy- ng activities. Among dis- ers from this proposal was the culture department which did believe another fact-finding p was needed. If it gets ex- ed life based on this proposal, B activity will probably be ed toward reviewing and rec- ending actions to the Presi- rather than statistic gather-

Spurs Aluminum Output

The Defense Production Admin- istration partially filled its 200,000- primary aluminum expansion by granting a certificate of ssity to Harvey Machine Co. Torrance, Calif., for reduction ities to produce 54,000 net annually. Harvey's installa- , including an alumina plant bauxite facilities, will be ated at The Dalles, Oreg., with er to be supplied by the Bon- le Power Administration. ect costs will be about \$65,250,- with 85 per cent allowed for derated amortization.

DPA's latest action will bring 64,000 short tons the amount new primary aluminum capacity unounced under its Oct. 1, 1952 sion goal. In November, 1952, issued two certificates to Olin stries Inc., East Alton, Ill., facilities to produce 110,000 of primary aluminum annual. The latest revision will raise estic capacity to 1,746,000 tons, paired with 1950's potential of 000 tons.



Gage Makers:

Whose Money Will Finance Mobilization Expansion?

WASHINGTON plans are afoot to make it possible to expand the gage industry output 50 per cent over what it is today—about \$98 million worth of gages annually for the armed services alone.

Gage makers have increased production some 40 per cent over a year ago, mostly without expanding plant area. Better machines have helped, and new production methods and operator techniques accounted for the rest.

Expansion? — Those methods will be explored still further. How much actual new capacity will be added is debatable. Says one manufacturer: "We invested our own money in facilities for defense work during World War II and then were left high and dry as soon as the emergency passed."

More subcontracting is a possibility, but that's being used a lot already. Shadow plants appear as another way to get added capacity, for some of the new potential probably would not be used unless there's an allout war. Government planners are thinking on a just-in-case basis.

Matter of Manpower — Skilled manpower is as much of a bottleneck to increased gage production as plant capacity in some areas such as New England, Detroit and Ohio. Gage manufacturers have sometimes had to take the work where the men were instead of hiring more men in their own shops. That's led to an increase in jobbing shops, small firms usually, which produce parts or units on a single contract. There have been cases in the distressed areas mentioned above of farming gage work out to tool and die shops, which actually is only robbing Peter to pay Paul.

Materials are much easier now than a year ago and rank a poor third in problems of the gage industry after manpower and plant

space. Still hard to get are gages made of stainless steel or of beryllium copper, in which case deliveries are extended 60 weeks or more. Fortunately, the need for gages of that type is not extensive.

Business in 1952 remained steady at high levels. Some gage makers report incoming orders are about even with last year, but increased capacity has enabled them to lower their backlog about 20 per cent. But the majority of firms say that they're only meeting demand with no reduction in backlog which average 11 to 12 months.

No Worry—The huge backlog is one reason gage makers aren't concerned about 1953 volume even though the outlook includes a drop off in demand next year. With direct defense business accounting for about 50 per cent of the gage volume, a tapering off in defense tooling programs should bring the dip despite the fact automotive users, among gage makers' biggest civilian customers, and appliance makers have shown an increasing interest in gaging. For at least one Detroit firm, Freeland Gauge Co., 1952 was its biggest year ever.

Another group of civilian cus- tomers which is growing constant- ly are the component and fittings makers.

Still, the bulge in gage produc- tion is bound to disappear if de- fense requirements slacken. That's why the shadow plant suggestion is such a crucial one. The mobil- ization-inspired plant expansion for gage manufacturers is not likely to come about any other way.

Gage Makers Meet

Technical questions will be fea- tured in the formal meeting of the Gage Industry Division of the American Ordnance Association in Philadelphia Jan. 15.

Escalators Shift Gears

But readjustment of wages to the new cost-of-living index means less than firming gains

MOST POTENT of statistics, the cost-of-living-index is threatening great shakes in the labor picture. Renegotiation of contracts for some 3.5-million workers is upcoming as a result of revisions to modernize the index.

The new index will be coming out in February for January price levels. Most labor leaders are not happy about the prospect. Academic problems like proper sampling and weighting don't disturb them nearly so much as the queasy feeling that the old index gave wages a stronger push. And statisticians tend to agree *sub rosa*.

New Market Basket — Food, which made up about a third of the old index, will be dropped to less than 30 per cent in the new system and rent will come down. Both did more than their share of escalator pushing.

What the unions would like to do, heretically, is use the old index in times of rising food prices. When food prices start to decline, they'd like to switch to the new index. But the old index just won't be around. Old index figures can be converted to "new" by dividing by 1.672, but the conversion is purely mathematical.

Changes — The new index will be based on a new survey of 75 additional items including home ownership, home maintenance, restaurant meals and used cars. Fourteen of the 34 large cities formerly included in the index will be dropped, while 26 new medium and small cities have been added. Weighting will be adjusted in accordance with the 1950 census and the whole number bundle based on a 1947-1949 base rather than the current 1935-1939 pedestal.

That means that the 191 figure last summer would be only 114 under the new index and a point change will be harder to achieve. Thus a 1-cent change for each 1.14 index point increase—the common escalator arrangement—will have to be rebased on 0.68 moves. That can be done mathematically and for most unions the recalculation



Tall Rig for a Deep Hole

Notable success in the recent invasion of eastern oil fields by rotary drilling rigs in encouraging drillers to bring in ever larger equipment. Biggest rotary in the Driftwood field of Pennsylvania is this National Supply Ideal Type 75CB rig operated by Keta Oil & Gas Co., which on its first hole brought in a 1½ million cubic foot producing well at 7034 feet in 31 days.

will be all that is required.

Consolidation — Sole exception could be the 1.3-million autoworkers. Walter Reuther has indicated the union "will not accept an automatic changeover."

But most unions figure the cost-of-living index may have served its usefulness. The guaranteed annual wage could be the contract issue henceforth as labor quietly drops the escalator arrangement as living costs stabilize.

Ship Owners Accept Terms

Government - American Export Lines settlement is in right direction, but more is needed

WITH THE settlement last month of the final sales prices for the passenger liners *S. S. Constitution* and *S. S. Independence*, the government took a step in the right direction to clarify its shipbuilding subsidy policy, but there is still a long way to go before American shipping gets a real shot in the arm.

Under the original agreement,

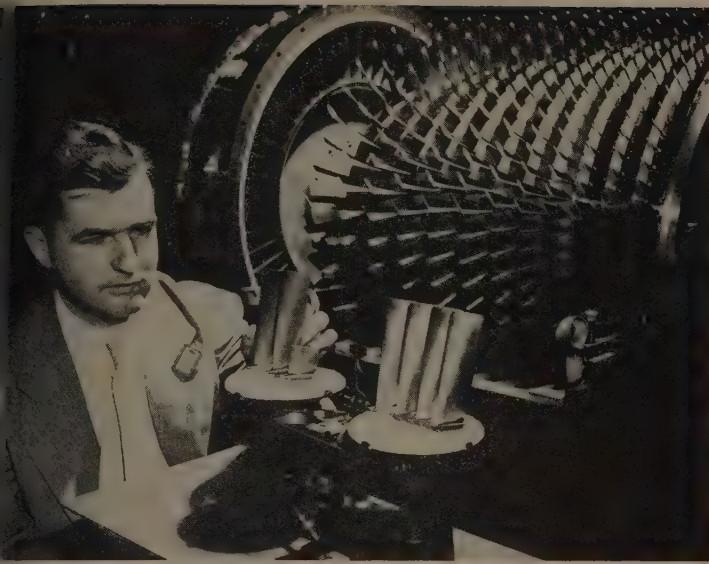
the American Export Lines was to pay the government million each for the *Constitution* and the *Independence*. Early fall, the government shifted percentages on which the payment was based and told the company to pay an additional \$5.5 million for each ship. The final settlement was for \$14,036,751 for *Independence* and \$14,436,956 for the *Constitution*, plus escalation costs. The company agreed to the

Shipbuilding Nil — At present there are no major ocean-going vessels under construction in American yards, and only a few domestic lines have any in planning stage. A. S. Graham, director of public relations for American Export Lines, feels the U. S. owners will not go abroad to have ships built even though the costs would be less than American prices. Such a move in effect would kill the government subsidy program which was instituted originally to offset the difference in foreign costs and encourage U. S. owners to use U. S. shipyards. If the new administration defines the differential policy clearly, many men in the industry think it will, the sad state of American shipping may be improved.

Safau — A case of a slightly different nature is the superliner *S. S. United States*. That is a matter of contractual obligation. John Franklin, president of the United States Line Co., claims that company's contract with the government for purchase of the liner is binding and cannot be broken. The will of the government. Attorney General McGranery says that it "is voidable at the election of the United States," and that as much as \$10 million should be paid to the company.

Challenge — Mr. Franklin contends that this is an illegal action. If the government wants to void the contract to get the extra money he challenges the attorney general to let the courts decide.

L. R. Sanford, president of the Shipbuilders Council of America, says that if the government would follow up the favorable action on the *Independence* and *Constitution* with equally favorable action on the *United States*, it would be a boon to domestic shipbuilding.



Titanium Replaces Steel for Jet Engine Compressor Blade

Substitution of titanium alloy Ti 150A for steel in jet engine compressor rotor blades cuts blade weight almost in half. A General Electric Co. technician compares four titanium blades against two and a fraction steel blades to show how several pounds of pay-load saving weight can be cut from compressor rotors.

P Sets the Stage for Defense Expansion

P: You will become familiar with these initials in the months to come.

They are short for "Production Acceleration Insurance Program," started by the Air Force and Navy Bureau of Aeronautics in December of 1950 and recently by the Department of Defense. While thus new to the services, PAIP is expected to become newsworthy in the Department of Defense as it requested an appropriation to start the program.

The Meaning—What is PAIP and does it do? Says a Pentagon spokesman: "Under PAIP we formalize our procurement not only to care of current military end-needs but to build into existing facilities a production potential which will help create a full scale industrial mobilization

We do this by procuring larger and faster machine tools than previously needed. We do it by laying production lines for single-operation whose capacity can be greatly increased by running them on two or three shifts. Do it by placing contracts with local suppliers even though one item alone could meet needs of

the moment. Thus we raise potential expandable capacity.

"What we need now is authority to buy machine tools and other production equipment of a long-lead-time nature, to equip all existing facilities completely. In particular, we want to order the big tools, classed as 'elephants,' which take 18 months to two years to produce. By doing that, we would greatly reduce the delays in getting a defense plant into peak production. To illustrate what is meant, it has been taking two to three years to get an airframe plant to peak production—and a lot of this time is spent waiting for long-lead-time machine tools. If we get this equipment ahead of

time, then delays in getting an airframe plant into peak production would be limited to recruiting and training a labor force and setting up the flow of materials."

New Furnaces at Cameron

Cameron Iron Works Inc., Houston, made the first pouring from one of two electric furnaces newly installed under a multimillion-dollar expansion program. The 25-ton units, installed under a cooperative program with the government, are designed to produce high quality steel for manufacture of ordnance items.

Plan Manganese Recovery

An experimental plant to test the commercial feasibility of recovering ferromanganese from open hearth furnace slag will be constructed within the coming year.

The Defense Materials Procurement Agency will make cash advances to Mangaslag Inc., Ft. Worth, Tex., to aid in building a pilot plant at Coxton, Pa. This plant is expected to produce at least 1000 long tons of ferromanganese a month from slag furnished by major steel companies.

Processes to be employed by the new plant have been developed by the U. S. Bureau of Mines, attempting to salvage the estimated 500,000 tons of metallic manganese lost to slagpiles yearly.

Although the start will be slow, success would make the U. S. less dependent on imports from abroad, which now account for about 90 per cent of American manganese supplies. Domestic consumption in 1951 reached about 1.7 million long tons of ore. If the experimental plant is successful, Mangaslag will construct several commercial plants with much greater capacities.

SELECTED DEFENSE CONTRACTS IN EXCESS OF \$100,000

PRODUCT

PRODUCT	CONTRACTOR
Shells, 20 mm... Bombs, 100 lb... Metal Parts for Rockets Fuzes	Harvey Machine Co., Inc., Torrance, Calif. Pyrene Mfg. Co., Newark, N. J. Hubeny Brothers Inc., Roselle, N. J. Swank Inc., Attleboro, Mass. Harvill Corp., Los Angeles Price Pfister Brass Mfg. Co., Los Angeles
Aircraft Engine Parts Actuators Fuel Controls Hydraulic Pumps Parts for Pumps Inverters	Wright Aeronautical Corp., Curtiss-Wright Corp., New York Airborne Accessories, Hillside, N. J. Holley Carburetor Co., Detroit Paces Products Co., Borg-Warner Corp., Chicago Worthington Pump & Machinery Corp., Harrison, N. J.
Trucks, Crane, Gasoline Trucks, Warehouse Fire Trucks Generator Sets Electric Fans	Jack & Heinz Precision Industries Inc., Cleveland Hughes-Keenan Corp., Delaware, O. Yale & Towne Mfg. Co., New York ACF-Brill Motors Co., Philadelphia Miehle Printing Press Mfg. Co., Chicago Hunter Fan & Ventilating Co., Memphis, Tenn.

CHECKLIST ON CONTROLS

Materials Orders

ELECTRIC UTILITIES—Direction 3 to NPA Order M-50, issued and effective Dec. 24, 1952, provides for automatic revalidation of allotments for major electric utilities plant additions by permitting placement of authorized controlled material orders calling for deliveries of controlled materials in the calendar quarter succeeding the quarter for which the allotments were made.

TIN—Amendment of Dec. 31, 1952, of NPA Order M-8, effective Jan. 1, 1953, removes allocation controls from pig tin and authorizes certain new uses of tin and tin oxide. It also increases the amounts usable for specific purposes.

CANS—Amendment of Dec. 31, 1952, of NPA Order M-25 removes from the order any reference to quota percentage restrictions on the quantity of cans which may be used to pack various products. The restrictions expired on Dec. 31. At the same time NPA revoked Directions 2, 3 & 5 to NPA Order M-25 to implement elimination of the quota restrictions. All actions were effective Jan. 1, 1953.

STEEL DISTRIBUTORS—Direction 1 to NPA Order M-6A was revoked Dec. 31, 1952, effective Jan. 1, 1953. It required steel distributors to give preference, from Jan. 21, to Dec. 31, 1952, to authorized controlled material orders bearing allotment symbols A, B, C, E and a digit and Z-2. Preferential treatment for orders bearing those symbols is continued by Amendment 1 of NPA Order M-6A, issued Dec. 31, 1952, and effective Jan. 1, 1953.

STEEL WAREHOUSES—Direction 3 to NPA Order M-6A was revoked Dec. 31, 1952, effective Jan. 1, 1953. Until Dec. 31, it froze stocks of certain finished steel products for 15 days after receipt by warehouses.

STEEL—Direction 6 to NPA Order M-1 was revoked Dec. 31, 1952, effective Jan. 1, 1953. It provided that when a producer accepted orders in space reserved for such orders, the orders were required to be scheduled for shipment during the month for which delivery was requested and shipped on dates as close to those scheduled as possible, but not later than Dec. 31, 1952.

OIL COUNTRY GOODS—Directions 1 and 4 to NPA Order M-46, covering allocation of critical materials to U. S. and Canadian oil and gas industries, and Directions 1 and 2 to NPA Order M-46A, covering allocation of critical materials to foreign oil and gas industries, were revoked Dec. 31, 1952, effective Jan. 1, 1953.

OIL COUNTRY GOODS—Amendment of Jan. 6, 1953, of Direction 5 to NPA Order M-46 and Direction 7 to NPA Order M-46, effective Jan. 6, give general authorization for oil and gas operators to make trades or exchanges of new oil country tubular goods and line pipe involving foreign-made goods under certain conditions.

Controlled Materials Plan

TIN—Amendment 1 of CMP Regulation 1 and Amendment 2 of CMP Regu-

lation 6, both issued and effective Dec. 24, 1952, remove specified secondary tin mill products from the controlled materials category and from Class A and B classification.

STEEL—Amendment of Dec. 24, 1952, of Direction 4 to CMP Regulation 3 extended from Dec. 31, 1952, to June 30, 1953, the date for special preferential acceptance and delivery status of DO orders for products and components containing steel placed in support of military, atomic energy and machine tool programs. Amendment was effective Dec. 24, 1952.

STEEL—Amendment of Dec. 24, 1952, of Direction 18 to CMP Regulation 1, effective Dec. 24, 1952, permits certain producers of Class B products to calculate their own allotments of carbon and alloy steel items for the second quarter, 1953, on the basis of 110 per cent of their total third quarter, 1952, allotments, provided that such former allotments did not exceed 500 tons in the case of carbon steel and 90 tons in the case of alloy steel.

NPA Regulation

INVENTORY—Amendment of Dec. 24, 1952, of NPA Inventory Regulation 1, effective Dec. 24, 1952, removes inventory controls from the following commodities: Gray iron castings (excluding cast iron soil and pressure pipe and fittings), rough and semifinished; malleable iron castings, rough and semifinished; aluminum foil (plain coiled); aluminum powder (atomized or flake, including paste); cerium metal, cerium alloys, such as ferrocerium, and cerium compounds in which cerium is a recognizable component; all scrap and waste material containing commercially recoverable cerium of the above listed types; electrodes, carbon; graphite, artificial, electrodes and anodes; graphite, natural; crucible flake, ceylon lye, 97 per cent and higher carbon; iridium; components and parts for electric light bulbs and tubes; gas cylinders. The amendment also deletes the following commodities subject to specific calendar day inventory limitations: New steel shipping drums; gray iron castings (excluding iron soil and pressure pipe fittings), rough and semifinished; strapping metal.

Price Regulations

SMALL MANUFACTURERS—Amendment 3 of CPR 161, issued Dec. 24, 1952, and effective Dec. 29, shifts the place of filing reports on new commodities from Washington to the nearest district office for all manufacturers whose gross sales in their last fiscal year did not exceed \$1 million and all new manufacturers who do not expect their gross sales to exceed \$1 million during their first year.

TOOL STEEL—Amendment 8 of CPR 98, issued Dec. 30, 1952, and effective Jan. 5, 1953, authorizes warehouse resellers of tool steel bars and drill rods to increase their dollars-and-cents ceiling price by \$0.50 per 100 pounds added to the current net mill price f.o.b. point of production. Transportation costs are to be applied to destination point rather than warehouse location.

IMPORTS—Amendment 16 of CPR 31, issued Dec. 30, 1952, and effective

Jan. 5, 1953, states that when a overriding regulation exempts or pending controls on certain commodities unless language appears in the overriding regulation which limits applicability of that regulation to domestic sales only, it is applicable to all sales of such commodities otherwise under CPR 31.

COTTON-GINNING MACHINE—Supplementary Regulation 10 of CPR 30, issued and effective Dec. 31, 1952, authorizes an increase of 4.7 per cent in ceiling prices for manufacture cotton-ginning machinery, equipment and repair and replacement parts. Manufacturers may also reflect in ceiling prices increased metals granted under General Overriding Regulation 35 and increased outbound transportation costs granted under Supplementary Regulation 9 of CPR 30.

MACHINERY MANUFACTURE—Amendment 2 of Supplementary Regulation 8 of CPR 30, issued and effective Dec. 31, 1952, extends to Jan. 31, the time in which certain machinery manufacturers may choose an optional method of calculating increased ceiling prices under the Capehart amendment.

STEEL CASTINGS—Supplementary Regulation 2 of CPR 60, issued and effective Jan. 2, 1953, authorizes an increase of 5 per cent in ceiling prices for producers of carbon or low alloy castings and manganese steel castings in addition to increased costs of steel, iron, copper and aluminum as provided by General Overriding Regulation 35.

COPPER—Amendment 5 of General Overriding Regulation 35, issued Dec. 31, 1952, and effective Jan. 5, authorizes manufacturers who use certain products containing primary copper to pass through increased cost of copper products in cases where the ceiling price of the products have been established under General Ceiling Price Regulation 35.

GRAY IRON CASTINGS—Supplementary Regulation 3 of CPR 60 provides an increase of 9 per cent in ceiling prices for producers of gray iron castings. Amendment 8 of CPR 60 defines the categories of gray iron castings, carbon (carbon or low alloy), high carbon steel castings, manganese steel castings and malleable iron castings.

INGOT MOLDS, STOOLS—Amendment 43 of CPR 30 and Amendment 3 of Supplementary Regulation 3 of CPR 30, both issued and effective Jan. 5, clearly exclude from coverage of the \$30 ingot molds and stools. They are covered by castings regulation, CPR 60.

CONVERSION STEEL—Amendment 42 of CPR 30, issued Jan. 8, 1953, provides new methods for manufacturing machinery and related products in computing ceiling price adjustments to cover the increased cost of conversion steel. It is effective Feb. 6, 1953, earlier at option of the manufacturer.

MACHINERY—Amendment 4 of Supplementary Regulation 4 of CPR 30, Amendment 3 of Supplementary Regulation 8 of CPR 30, effective Jan. 12, 1953, give manufacturers of custom-built machinery the option of determining ceiling price adjustments either SR 4 or SR 8 of CPR 30.

More Scrap or More Steel

hortage threat currently absent with mill inventories largest since pre-war but scrap trade could be facing its severest test should world political situation worsen

AP suppliers to the iron and industry could be facing their test this year.

re's why. Assuming capacity production in 1953 of 116 million tons, and the ratio of scrap to iron in the steel furnace melt about the same as in recent years; total scrap requirements will hit a new all-time high of 75 million gross tons.

at's a lot of scrap. It's 19.3 per cent more than was consumed in 1952 and 9.5 per cent more than record scrap consumption in 1951 when over 105 million tons of scrap were poured from the nation's furnaces.

e Job Ahead—Of the total prospective scrap need, dealers and importers, who handle 95 per cent of purchased material, could be called upon to provide in excess of 60 million gross tons, 20 per cent more than the 30,600,000 consumed last year, and 9.3 per cent above record purchased scrap burden of 822,431 tons in 1951. The remainder, around 38 million tons, will be generated by the steel industry as scrap loss from ingot to final product.

With steel gushing from the mills in unprecedented volume as the new year gets under way, it is not surprising that once again the question is posed: Can scrap

supply keep pace with the steel industry's expanding needs?

While there are some Doubting Thomases, notably among government economic control officials, for the immediate future at least, the answer seems to be an emphatic YES. But for the longer term an unequivocal YES or NO seems out of the question. There are too many imponderables in the situation to permit of other than rough guesses or, at best, "iffy" predictions.

Enough for Now—Except for certain specialty grades, such as stainless and chromium steels, and some electric furnace material, there is no apparent or threatened scrap shortage at present. Mill inventories of the major grades of carbon steel scrap amounted to well over 6 million tons at turn of the year, highest since pre-war. Further, they were increasing with material flowing steadily into market channels as result of sustained high-level fabricating operations. This latter is important since almost one-third of all purchased scrap is of the prompt variety.

Supply conditions currently are in marked contrast with those of a year ago. At that time some steelmakers were desperately short of supplies and a government-sponsored drive for dormant material was being pushed to avert a seri-



ous deficiency. As 1952 progressed, need for the drive faded and pressure on the market virtually disappeared when the steelworkers went on strike at midyear.

Runner-Up—Total consumption of scrap last year at 62,900,000 gross tons was second highest in history despite the 6-weeks steel strike in June and July. It compared with 68,500,000 in 1951, 61,500,000 in 1950, and 55 million in 1943, the best war year for scrap consumption.

While the melt of purchased scrap was off 9.5 per cent and home scrap 7 per cent due to the steel strike, the decline in consumption of pig iron was 14.5 per cent, from 63,800,000 tons in 1951 to 54,600,000 in 1952.

Well Stocked—The mills' bank of more than 6 million tons of scrap at the beginning of this year assures adequate supplies to support capacity steel operations for some time, tonnage flow from fabricators continuing in substantial volume. Everything considered, neither the scrap trade nor the steel mills would seem to have much reason to be apprehensive of supply adequacy over coming months.

But despite the current comfortable supply, complacency is not warranted. Conditions could change quickly and the present adequate supply position turn out to be deceptive of what the scrap trade would be called upon to deliver. This would be especially true should current accelerated steel production continue into the indefinite future under lash of worsening world political conditions, in-

cluding a stepped-up military campaign to end the dreary Korean mess. In such event, the specter of scarcity possibly could return quickly to haunt the industry.

Confident — Generally, for the long pull, scrap trade leaders entertain no fears of their ability to meet anything but extremes in demand.

Purchased scrap supply has outpaced the growth in steelmaking capacity through the years. There have been temporary supply shortages, of course, but, generally, except for periods of unusual demand, requirements have been met fully. This is confirmed by the record of consumption, which, over the years, has risen faster than has steel capacity.

How It Grew — In 1911, purchased scrap consumption totaled 5,804,000 gross tons with steel capacity rated around 35 million tons. Last year purchased scrap consumption exceeded 30 million tons with steel capacity rated at 108,500,000 tons. That's an increase of over 200 per cent in steel capacity in the 41-year span, but a boost of over 400 per cent in purchased scrap consumption in the period.

Whether the nation's scrap reservoir will be sufficient to provide for continued expansion of steelmaking capacity into the indefinite future is debatable. There are those who feel the country has been denuded of much of its dormant scrap through the collection

drives during the war and postwar years, making industry increasingly dependent on prompt material.

One Thought—Also, it is thought by some that shipment of materiel out of the country during and since the war has substantially reduced the nation's scrap potential. Much of the current increase in scrap stocks, it is maintained, results from accumulations made possible only by the lengthy steel work stoppage last summer.

Hope that foreign supplies will be available in sufficient quantity to offset any basic shortage in domestic scrap resources appears slim. Steel production in other countries has been increasing, in some cases attaining unprecedented levels. These nations are bidding aggressively for available scrap in the world markets, and generally, the United States has not fared too well in securing a share of the available tonnage commensurate with its percentage of world steelmaking capacity.

Minor Factor—Last year foreign trade in scrap was but a minor factor in supply. Imports were only 85,000 gross tons compared with 345,000 in 1951, 650,000 in 1950, and 980,000 in 1949.

Adverse factors in the situation are not dampening the scrap trade's belief in its ability to meet future supply problems. Dealers are cognizant that their supply task will increase in step with enlarged steelmaking capacity since new blast furnace capacity is doing lit-

SCRAP PRICES (HEAVY MELTING)

and
STEEL OUTPUT

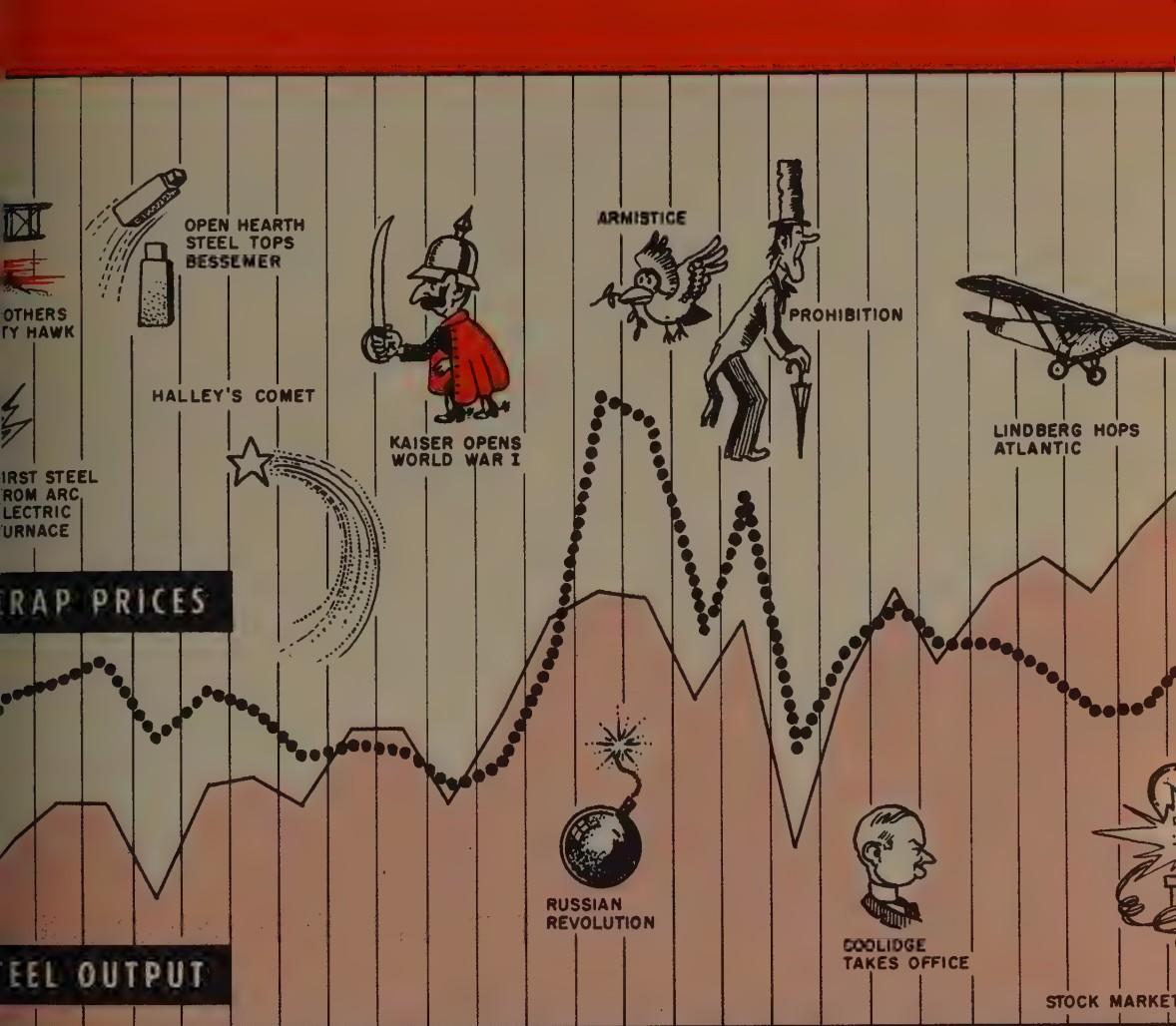
1902-1955

SCRAP PRICES—Dollars per Gross Tons.
STEEL PRODUCTION—Thousands of Net Tons.
(Monthly Averages)

CONSUMPTION OF FERROUS SCRAP

YEAR	TOTAL	PURCHASED	HOME	(GROSS TONS)	YEAR	TOTAL	PURCHASED	HOME
					1911	12,100,000	5,804,000	6,296,000
1912	16,100,000	9,107,000	6,993,000	1933	17,400,000	8,482,000	8,918,000	
1913	15,300,000	8,571,000	6,729,000	1934	18,800,000	9,464,000	9,336,000	
1914	12,200,000	7,857,000	4,343,000	1935	26,415,000	13,068,000	13,347,000	
1915	18,600,000	8,661,000	9,939,000	1936	36,358,000	17,457,000	18,901,000	
1916	23,400,000	10,804,000	12,596,000	1937	38,006,000	18,135,000	19,871,000	
1917	26,800,000	12,589,000	14,211,000	1938	21,345,000	10,024,000	11,321,000	
1918	25,400,000	9,821,000	15,579,000	1939	32,434,000	14,915,000	17,519,000	
1919	20,700,000	1,000,000	19,700,000	1940	39,759,000	17,395,000	22,364,000	
1920	26,000,000	15,000,000	11,000,000	1941	52,872,000	22,589,000	30,283,000	
1921	12,400,000	8,125,000	4,275,000	1942	53,808,000	24,228,000	29,580,000	
1922	23,700,000	13,839,000	9,861,000	1943	55,045,000	23,762,000	31,283,000	
1923	27,000,000	12,768,000	14,232,000	1944	54,776,000	23,145,000	31,631,000	
1924	26,200,000	14,018,000	12,182,000	1945	50,171,000	22,527,000	27,644,000	
1925	30,700,000	15,982,000	14,718,000	1946	44,182,000	20,848,000	23,334,000	
1926	32,200,000	16,964,000	15,236,000	1947	54,343,000	26,148,000	28,195,000	
1927	30,700,000	16,964,000	13,736,000	1948	58,003,000	29,057,000	28,946,000	
1928	34,000,000	20,000,000	14,000,000	1949	48,516,000	22,475,000	26,041,000	
1929	37,600,000	21,339,000	16,261,000	1950	61,497,000	29,402,000	32,095,000	
1930	26,600,000	15,000,000	11,600,000	1951	68,500,000	33,800,000	34,700,000	
1931	18,300,000	10,982,000	7,318,000	1952*	62,900,000	30,600,000	32,300,000	

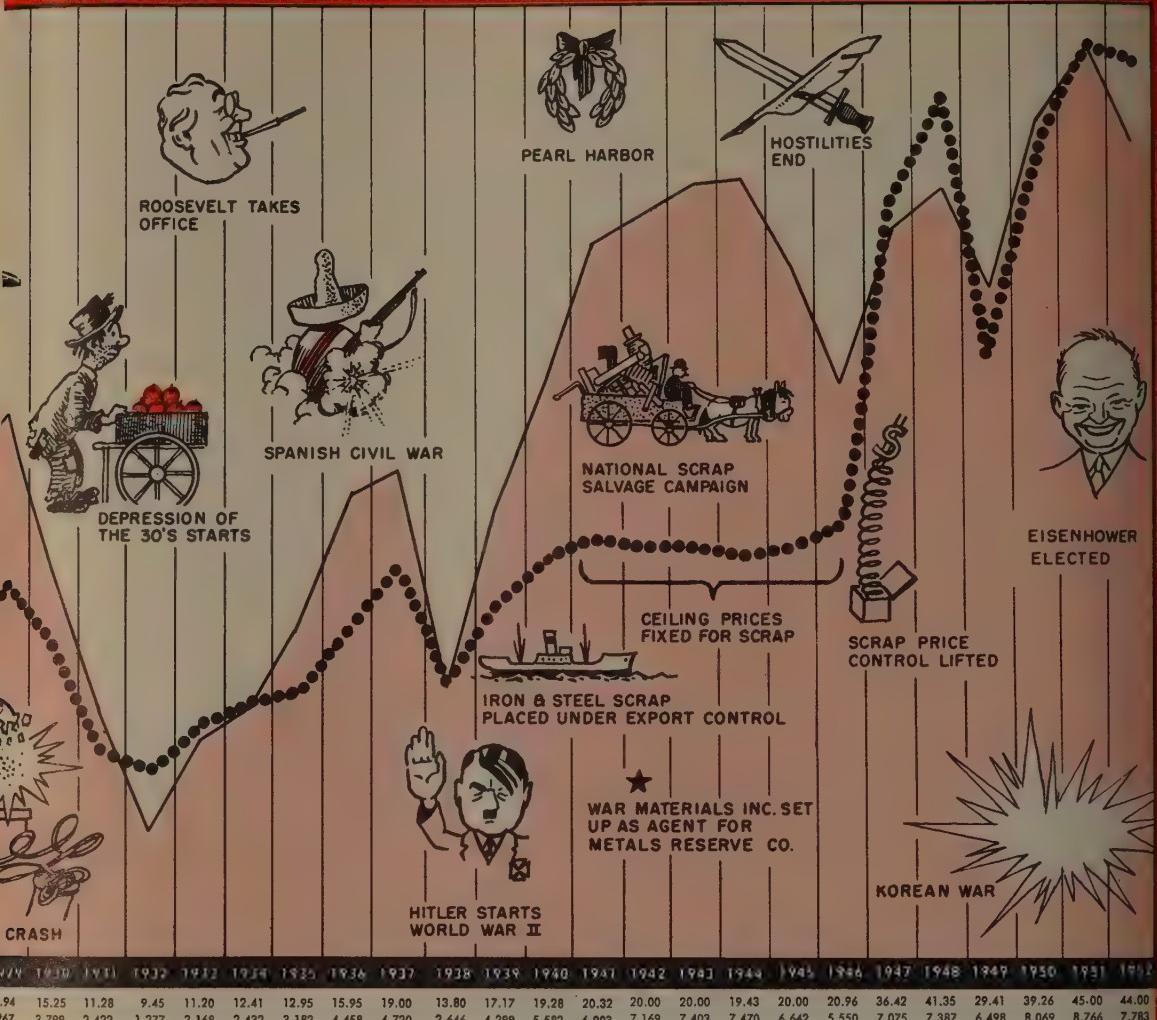
*Estimated.



MONTHLY AVERAGE SCRAP PRICES

(No. 1 Heavy Melting Steel, Gross Tons, Pittsburgh)

JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	Avg.
\$44.00	\$44.00	\$44.00	\$44.00	\$44.00	\$44.00	\$44.00	\$44.00	\$44.00	\$44.00	\$44.00	\$44.00	\$44.00
47.50	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	44.60	44.00	44.00	45.00
30.00	31.65	31.60	32.88	38.10	44.25	40.50	43.60	44.00	44.00	44.00	46.50	39.26
41.90	40.00	36.30	25.12	23.25	22.60	21.00	22.13	28.20	29.50	31.50	31.40	29.41
40.30	40.44	40.25	40.25	40.25	40.25	40.75	42.75	42.75	42.75	42.75	42.75	41.35
32.50	34.40	37.25	35.81	30.00	32.44	37.20	39.50	38.00	39.90	40.00	40.00	36.42
20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	23.00	28.50	20.96
20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	19.00	16.95	17.15	20.00	19.43
20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
22.15	20.75	20.75	20.20	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.32
18.15	17.75	17.05	16.45	18.00	19.90	19.55	18.75	20.15	21.30	21.50	22.75	19.28
15.60	15.65	15.75	15.50	14.55	15.00	15.55	16.15	18.75	23.15	21.90	18.50	17.17
13.50	13.25	12.40	11.70	12.00	12.25	12.30	13.25	13.45	13.65	13.65	14.05	12.95
10.25	10.25	10.25	10.20	9.75	9.00	8.35	8.55	9.50	9.50	9.15	8.70	9.45
19.00	18.60	18.50	18.50	17.85	18.30	18.45	18.90	18.45	17.30	16.30	15.10	17.94
23.25	21.90	23.40	28.15	28.40	40.00	40.25	36.60	35.50	31.30	29.60	30.00	30.70



MONTHLY STEEL INGOT OUTPUT

(Thousands of Net Tons)

	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	Avg.
1952	9,136	8,657	9,404	7,991	8,204	1,639	1,826	8,498	9,062	9,806	9,446	9,930	7,783
1951	8,848	7,770	9,076	8,845	9,100	8,662	8,684	8,739	8,660	9,121	8,799	8,890	8,766
1950	7,941	6,803	7,497	8,224	8,564	8,143	8,082	8,242	8,204	8,752	8,023	8,355	8,069
1949	8,197	7,494	8,402	7,796	7,599	6,505	5,785	6,723	6,598	928	4,223	7,728	6,498
1948	7,481	6,948	7,619	6,224	7,581	7,265	7,076	7,447	7,425	7,997	7,798	7,781	7,387
1947	7,223	6,430	7,317	7,052	7,339	6,978	6,579	6,991	6,797	7,570	7,242	7,376	7,075
1946	3,873	1,393	6,509	5,861	4,073	5,626	6,619	6,925	6,556	6,952	6,458	5,761	5,550
1945	7,204	6,653	7,706	7,290	7,450	6,841	6,986	5,735	5,982	5,597	6,200	6,058	6,642
1944	7,593	7,194	7,826	7,594	7,703	7,234	7,498	7,499	7,235	7,621	7,279	7,366	7,470
1943	7,425	6,825	7,675	7,374	7,550	7,039	7,408	7,586	7,514	7,814	7,372	7,355	7,403
1942	7,125	6,521	7,393	7,122	7,387	7,022	7,149	7,233	7,067	7,585	7,185	7,303	7,169
1941	6,928	6,238	7,132	6,757	7,053	6,801	6,822	7,001	6,820	7,243	6,970	7,164	6,903
1940	5,765	4,526	4,389	4,100	4,968	5,657	5,725	6,186	6,056	6,645	6,469	6,495	5,582
1939	3,663	3,448	3,929	3,432	3,373	3,607	3,649	4,342	4,882	6,223	6,292	5,989	4,299
1935	3,279	3,170	3,274	3,017	3,009	2,581	2,591	3,332	3,228	3,591	3,600	3,512	3,182
1932	1,686	1,681	1,627	1,430	1,277	1,036	916	961	1,126	1,234	1,172	.977	1,277
1929	5,115	4,920	5,761	5,627	6,009	5,573	5,514	5,614	5,147	5,154	4,002	3,300	5,267
1917	4,223	4,223	4,223	4,223	4,223	4,117	3,924	4,170	3,968	4,475	4,227	3,650	4,206

tle more than keeping pace with the enlargement in steelmaking.

Grows with the Needs—Since almost one-third of all scrap purchased in the open market is of the prompt industrial variety arising from fabrication of new iron and steel, this means as steel production and consumption rise more prompt scrap becomes available. Thus, for every three additional tons of purchased scrap required, one ton automatically is generated from fabricating operations. The remaining two tons come from obsolescence.

Normally, obsolescence occurs as articles and objects of iron and steel become available. The more new automobiles manufactured, for example, the more automobiles head for the graveyard.

Potential Scrap—More than 1.5 billion tons of steel are estimated now in use in this country. Eventually, almost every ton of this steel will find its way back to the steel mills and foundries, though the return trip will vary in time, subject to the vagaries of the scrap cycle as it applies to the separate articles and objects made of steel.

Barring war, or similar grave emergency, normal obsolescence, along with the scrap trade's ability to reach out for material, should assure suppliers sufficient tonnage to provide pretty much what will be demanded of them in normal times. Only in event of a serious emergency, it is felt, would government drives and similar stimuli be required to intensify the movement of dormant scrap to market.

They Kept Pace—While the impressive increase in scrap consumption over the years is attributable to changes in steelmaking practice in step with expanding use of steel and need for rapid melting, such enlarged use would not have been possible were it not for improved techniques developed by the scrap industry for collecting and preparing material.

From a relative infant early in the century, scrap collecting and preparing has grown to a business giant, comprising thousands of dealers maintaining scrap yards and employing over 200,000 persons in doing a business volume estimated well in excess of \$1 billion annually.

INSTITUTE OF SCRAP IRON & STEEL OBSERVING SILVER ANNIVERSARY

Significantly, much of the trade's progress has taken place over the past 25 years during which time the industry's national trade association, the Institute of Scrap Iron & Steel Inc., has been a potent force for sound business statesmanship in the industry. Founded in 1928, this organization commemorates its silver anniversary at its 1953 convention in New York City, Jan. 11 to 13.

Fused in the heat of economic necessity when the scrap market was more or less disorganized and profitable operations were hampered by trading evils that resulted in casualties among dealers and brokers on an alarming scale, the Institute has since served as a guiding force in bringing the scrap business to its present high standing. Comparison of stable market conditions today with those prevailing prior to the Institute's formation is convincing testimony to the effectiveness of its program these past 25 years.

The Institute was formally launched on Aug. 1, 1928, when Benjamin Schwartz, the first administrative officer, set up office at 11 W. 42nd St., New York, following six months of organizing effort which started with a meeting of eastern dealers in February, 1928. Leadership was provided by 29 men comprising the first officers and executive committee, and the presidents of the first 12 chapters. Of these only 11 are living today.

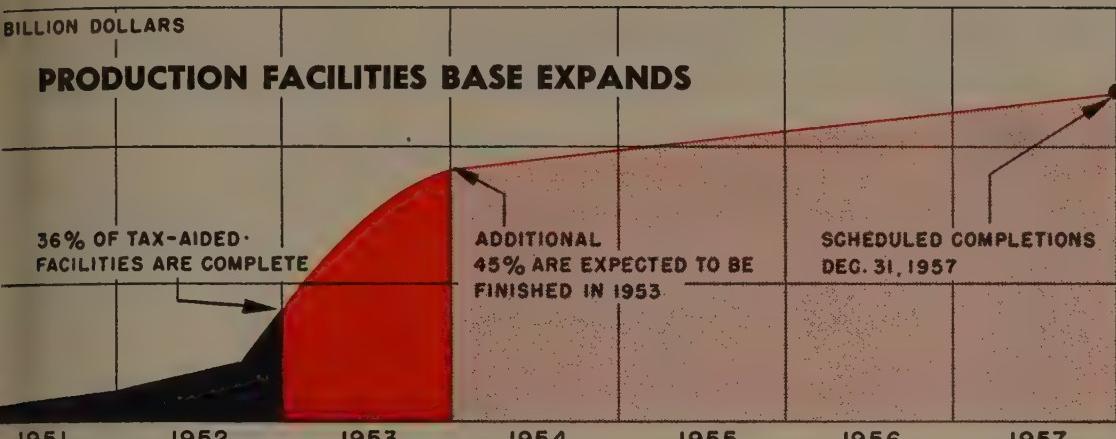
Originally the organization was conceived as a regional body known as the Eastern Scrap Iron Association. But after Mr. Schwartz joined as director general, its scope was enlarged from local to national, and chapters were set up throughout the country. Today the Institute has 1350 members in 24 chapters, membership extending to Canada and Europe.

After ten years as director general, Mr. Schwartz resigned in August, 1938, being succeeded by Edwin C. Barringer, at that time editor of *Daily Metal Trade*, and prior to that managing editor of *STEEL*, both Penton publications. Under Mr. Barringer as executive vice president, in which post he still directs the Institute's activities, the sound program for the industry conceived by Mr. Schwartz and the officers in the early days, has been expanded and aggressively pressed to the mutual advantage of both the scrap trade and consumers.

Objectives of the Institute are achieved through its many services, affording a means of communication among members, promoting co-operation and a high standard of business conduct, facilitating commerce through uniform specifications and standards, providing arbitration, and collecting and disseminating statistical and other information, as well as serving as liaison with the government, briefing its membership on important developments, conducting seminars on scrap, and generally promoting sound trade and public relations.

The story of the Institute of Scrap Iron & Steel, in many respects, is the story of the modern scrap iron and steel industry. Under its aegis, the trade has kept pace with the fast-growing economy of the nation, its scope, facilities and services expanding in step with the ever-rising needs of a scrap-hungry steel industry through World War II and the current cold war emergency.

If the scrap industry's impressive supply record of the past 25 years under the guidance of its national trade association means anything at all, it provides assurance of continued stellar performance in the months and years ahead in meeting the nation's needs.



Peak of mobilization expansion will pass with 81 per cent of present fast tax amortization projects to be completed by next December. New jobs will fill in the gaps.

MOBILIZATION...

AMERICA is building up its defense mobilization base, as charts this page show, but industry may not be able to generate the strength that national security demands until 1955.

In a quarterly report of the Office of Defense Mobilization, Henry Fowler, director, cited gains made since the Korean War. These include doubling our armed forces, bolstering our allies' strength and increasing our military production abilities. ODM says production of military "hard goods" has been multiplied seven times.

Good Start—Industry's achievements have brought the free world "the end of the beginning" in its battle with Communism. Important tasks remaining ahead include complete equipping of the nation's armed forces.

To assure the efficiency of the armed forces, industry must hold the lead in research, the ODM report continues. In radar equipment, ammunition and combat aircraft the majority of post-Korean models are not yet ready for production, and may not be for three years. Half of the new guns developed since mid-1950 are in production, while one-third of new combat vehicles are in the theory stage.

Mobilization Speed-up—A chart this page shows the rate at which new production facilities, aided by fast tax write-offs, are

completed. Some 15,000 projects with a value of \$25 billion have been granted certificates of necessity, and roughly one-third are now finished. Although this represents the bulk of the defense mobilization base, new projects and new expansion goals are continually being added.

Edwin B. George is chairmanning an ODM committee which expects to come up with a mobilization base program by late February or early March. It will be predicated on the armed services' estimates of their needs for military hard goods in the first, second and third years of all out war, plus our experiences in World War II.

Common Defense—Military aid to North Atlantic Treaty nations has increased steadily since 1950. U. S. shipments to all allies averaged more than \$200 million monthly in the last six months, double the 1951 deliveries.

ODM is confident that industry will complete its mobilization for defense without undue strain to the economy. As the production program levels off, many economic controls can be removed. During 1953, ODM expects the Controlled Materials Plan will be progressively relaxed. The agency will strive for continued controls on prices, wages, priorities and allocations, at least through the first half of 1953.

EQUIPPING OUR ARMED FORCES

\$129 BILLION AUTHORIZED

\$48 BILLION DELIVERED

\$81 BILLION OR 63% NOT YET DELIVERED

Military production will keep rising and add to the \$129 billion authorized since Korean war began in mid-1950

EQUIPPING OUR ALLIES

\$14.1 BILLION APPROPRIATED

\$3.2 BILLION DELIVERED

\$10.9 BILLION OR 77% NOT YET DELIVERED

Military shipments, totalling \$14.1 billion since mid-1950, continue high. Off-shore procurement will increase

Windows of Washington

By E. C. KREUTZBERG Washington Editor

Expect little tax relief in 1953. Tax reduction bills already in the hopper spell only politics. Real help pends Ike's foreign policy, defrayment of Truman commitments

BUSINESSMEN should not be too much encouraged by the tax reduction bills already down the legislative hopper of the 83rd Congress. In Washington they generally are regarded as smart politics. Congressional leaders hope that tax relief can be granted but are making no promises.

Senator Styles Bridges, president pro tempore of the Senate, and Senator Taft emphasize that the first objective is to balance the budget. That will not be easy, particularly in view of the carry-over of \$77 billion of obligations from the Truman administration which will have to be defrayed. While effective cooperation between an economy-minded administration and an economy-minded Congress can cut down substantially the cost of running the government, and particularly the Defense department, the question as to what additional expenses may be necessitated to implement the Eisenhower plan to adopt a foreign policy of "action" remains unanswered.

Tip-offs—The new tax bills are significant mainly because they reflect the current ideas of legislators as to the maximum amount of reduction that may be considered now. The principal bill, by the new chairman of the Ways and Means Committee, Rep. Daniel A. Reed, would make effective June 30 the 11 per cent reduction now slated for Dec. 31—on "lower and middle income groups." These brackets would net a 5.5 per cent reduction in their income taxes for 1953.

The potential relief to the higher-income brackets is less. Taxpayers in the highest brackets would get a cut of only 0.5 per cent. Mr. Reed also favors letting the excess profits die on the present expiration date of June 30. Propponents of such reductions are careful to state that they must be tied in with corresponding cuts in the federal budget.

No Long-Time Answers—An in-

teresting bill introduced by Rep. Richard M. Simpson, a Ways and Means Committee member, specifies standards under which any firm or corporation could seek relief if it feels it is unduly penalized by the excess profits tax.

By the very nature of the problem, it is considered assured that no long-time answers to the tax problem will be forthcoming until late in the present session, and maybe not before next year.

FSS Buys Civvie Items . . .

Effective immediately, Federal Supply Service of General Services Administration is established as the required source of supply for all civilian-type items listed in the FSS Store Stock Catalog which are authorized by the military departments for local procurement.

That means that such items hereafter will be procured by FSS instead of by the armed services. The change has been implemented through a Munitions Board revision of Part 1, Section V, of the Armed Services Procurement Regulation entitled "Interdepartmental Procurement."

Probe Ore Alloy Content . . .

Research program just launched by the Bureau of Mines at its Pittsburgh Experimental Station aims at treatment of Cuban laterite ores to derive fullest benefits from their alloy contents. These are small—1.5 per cent chromium, 1 per cent or less of nickel, and about 0.1 per cent cobalt.

But the deposits run into billions of tons, so that the quantities of these elements involved are huge. The ores contain in the neighborhood of 40 per cent iron, so what the bureau is shooting at is pig iron with several per cent nickel (and cobalt) to which more nickel can be added, and chromium-containing slag with chromium content up to ore grade.



SCRUTINIZING PEGS AND HOLE . . . Army's new manpower office

Manpower Officers for Army . . .

As part of its response to criticisms of one to two years ago that it was making wasteful use of manpower, the Army just graduated, at Fort Benjamin Harrison Ind., its first class of "Manpower Management Officers." The new group of officers, and similar groups to come, are to have the specific responsibility of insuring that every soldier and civilian employee is properly assigned and that duties are carried out with few number of man-hours.

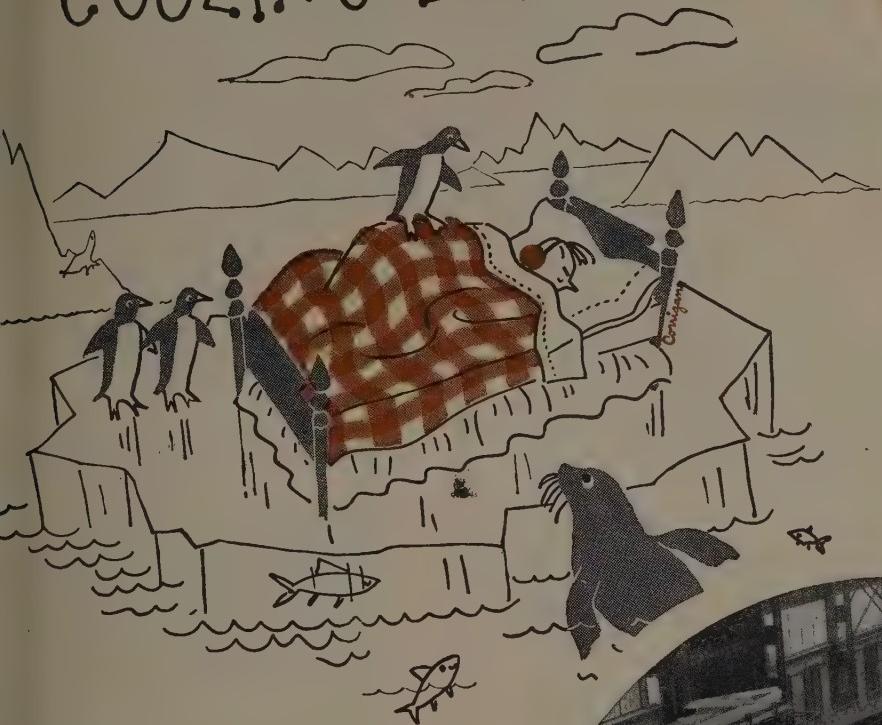
"I believe," said Assistant Secretary of the Army Fred Koenig, "that the Army's system of manpower controls today compares favorably with the best that is found in industry."

Documentarily Speaking . . .

The 1952 edition of the Census Bureau's best seller, the "Statistical Abstract of the United States," widely used by business and industry in formulating investment, expansion, production and market programs is off the press.

Many manufacturers will want copies of the HHFA-Cornell University report entitled "Practices and Precepts of Marketing Prefabricated Houses." It not only covers the economic problems involved in producing and selling prefabricated housing but has a list of manufacturers and dealers. Copies of both publications are available from superintendent of documents.

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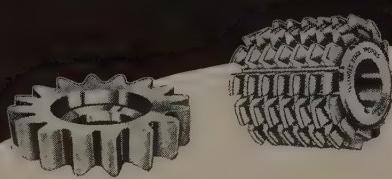
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to Ordaz Docks Ready for Cerro Bolivar Ores

Docks at Puerto Ordaz, Venezuela, receive equipment which will be used in development of Cerro Bolivar iron ore deposits 90 miles to the southwest. Port was built 154.5 nautical miles from the mouth of the Orinoco river by Orinoco Mining Co., a subsidiary of U. S. Steel Corp. Upon completion of the loading and handling facilities, ore will travel by rail from Cerro Bolivar to Ordaz, thence by ship to United States ports and U. S. Steel's furnaces.

European Steel Prices Wobble

Price changes for steel are coming in Europe as output catches up with demand. Belgium makes the latest adjustment; the Germans talk over others

YEAR 1953 will see basic changes in the European metalworking outlook. Steel output has been increasing steadily while manufacturer's backlogs have been steadily declining.

ases, such as "the first time since World War II" and "the first in history", will probably be broken during the coming

and Now—Here are examples which have already appeared—of bigger automobiles in man can get immediate delivery the waiting period for the newer, more popular cars has drastically cut for the first time since World War II. Imports of steel into Germany are now running four or five times as much as imports for the first time in German history.

everywhere in Europe there is some price cuts on semifinished products. Latest drop was a 10 per cent reduction by Belgium on ex-

ports to EPU (European Payments Union) countries. For dollar zone countries, the Belgian's basic price for merchant steel is \$96 per metric ton. The Germans are unhappy about the price discrimination since the cost to them is \$110.50 per metric ton on merchant bars and \$140 per metric ton on medium and heavy sheets. But, the Germans themselves are talking about price cuts and experts there look for world market price declines to about \$70 or \$75 per ton on steel bars. Before Korea, the price had slipped in some cases to \$48 per ton on steel bars.

Watch for more price adjustments and changes in steel distribution as the year progresses.

Banner Year for Exports

American exporters find they don't necessarily have to lose export sales—even with currency problems and dollar-import cuts.

J. D. A. Morrow, president of

Joy Mfg. Co., Pittsburgh, reports a record volume of foreign sales of mechanical mining equipment in the last fiscal year ended September, 1952. The company's American plants exported \$12,491,000 and sales of its foreign subsidiaries totaled \$10,209,000. Together, the total \$22,700,000 worth of foreign sales represents one-fourth of the global sales of Joy during the fiscal year.

Westinghouse Electric International Co. says 1952 was the greatest year in the company's history for export appliance sales. Actual dollar figures were not released, but C. E. Bitzer, manager of appliance sales for Westinghouse International, says: "Sales in 1952 are expected to exceed those of 1951 by nearly 25 per cent and to about double those of 1949." Refrigerators continue to lead the list of major appliances sold in foreign markets, with automatic electric washers a close second. Electric fans account for the greatest percentage of Westinghouse small appliance sales in the foreign field.

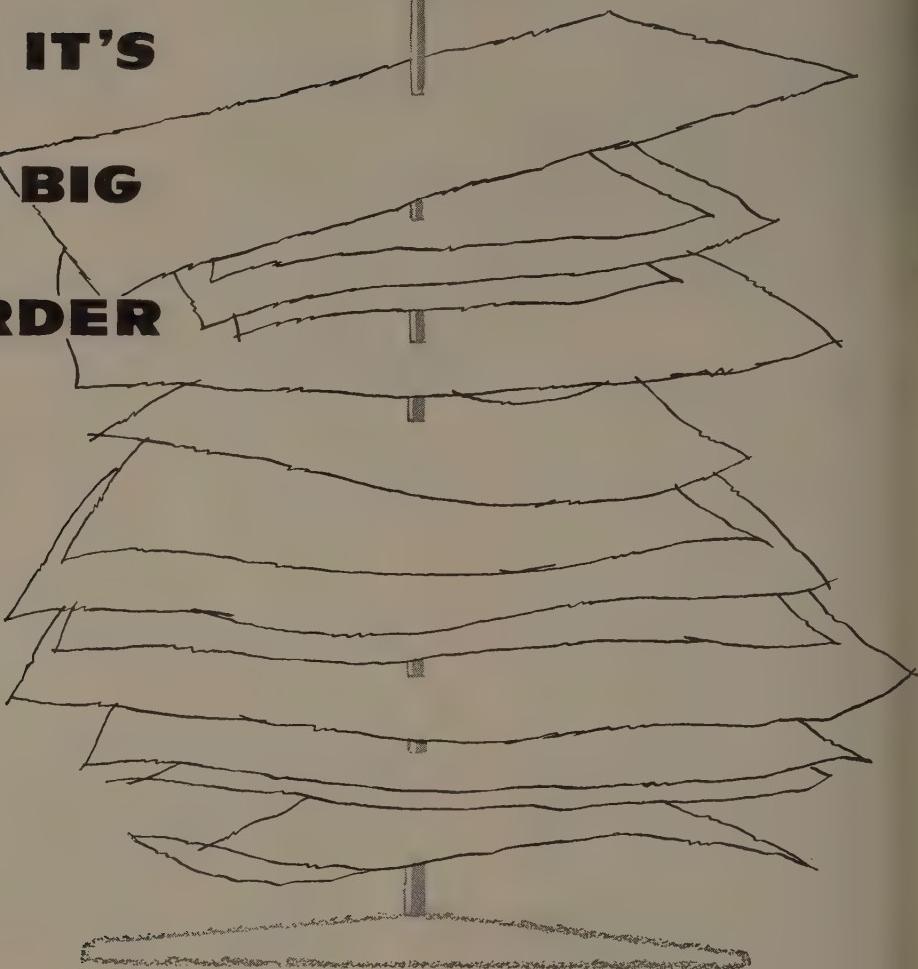
Two New for Holland

Two U. S. manufacturers went into business in Holland recently—one with a new plant, the other with a licensing agreement.

Ekco Products Co. has completed arrangements for the manufacture of high-quality stainless steel table flatware by N. V. Gerofabriek, Zeist, Holland. Ekco has similar arrangements with Societe France-Exploration, Thiers, France, and Tomado, N. V., wire housewares makers of Dordrecht, Netherlands. "Distribution of noncompetitive foreign-made goods strengthens our economy," says Edward Keating, president of Ekco International Corp., "and gives American buyers a wider range of choice. At the same time our friends abroad build up their dollar balances."

Eugene Caldwell, vice president and general manager of Hyster Co., Portland, Ore., announces a new firm, Hyster Europe, N. V., will produce certain Hyster materials handling products for the European market. The operation will occupy a new plant at Nijmegen, Holland, and will get underway about June 1, 1953.

**IT'S
A BIG
ORDER**



...and we're grateful

Thanks to you, we've just completed a wonderful, successful year, our sixtieth. Naturally, we're proud of this proof that Hyatt Roller Bearings have earned the confidence of so many leading manufacturers of all kinds of equipment. In the year ahead we will have the advantage of enlarged plants and new, additional facilities to help us fill the continually expanding demand for Hyatt quality bearings. We're grateful for your valued business of the past year and will be looking forward to serving you again in 1953 along with many new Hyatt users. Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey, Chicago, Detroit, Pittsburgh, Oakland, California.

H **YATT**
ROLLER BEARING

Mirrors of Motordom



New Look in '53 for Cadillac and Chevrolet

Greater gasoline economy is expected from Cadillac's 210 horsepower engine with 8.25 to 1 compression and high valve lifts. New also are a 12-volt electrical system and low 3.07 to 1 rear axle ratio.

Redesign of the 1953 Chevrolet line shows up in enlarged front and rear glass areas, new fender and hood contours and fresh grille treatment. Pictured are Cadillac's 62 Coupe de Ville, left, and Chevrolet's "Two-Ten" four-door

General Motors takes the automotive spotlight with introduction of 1953 models for Cadillac, Buick, Oldsmobile and Chevrolet. Pontiac came out early in December

DETROIT

ONE who read a newspaper or heard a radio last week could fail to note that 1953 models of Cadillac, Buick, Oldsmobile and Chevrolet were being introduced. And even while the echoes of these individual fanfares still reverberate the GM Motorama at New York's Waldorf Astoria will amplify the din and add some new beats to it.

This show, for all its magnificence, is just the crumbs. GM's bread is in the nation's dealer brooms. The first helping—baked up by Pontiac Division—hit the market early in December. Now come Cadillac, Buick, Chevrolet and Oldsmobile.

Solid Fare—By scraping off the paint to see what the main ingredients of the four divisions' products baked up like, we can see some solid fare underneath. Each division used a different measuring spoon to get improved performance and better economy. They increased their horsepowers substantially; two—Buick and Chevrolet—redesigned their torque converter transmissions; Buick put in a long-awaited V-8 engine; and Buick, Olds and Cadillac went to 12-volt electrical systems.

Chevrolet—Appearancewise, Chevrolet takes on some of the

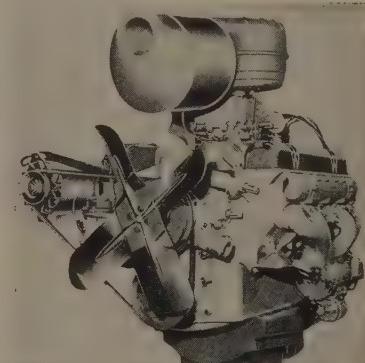
front-end features of Cadillac. The honey-combed grille and front fender embossing from headlight bezel back to door are Cadillac-inspired. The body is lower than previously but the headroom and legroom space is increased. Overall length at the same time is reduced two inches by snuggling the bumpers closer to the body. Wheelbase is not changed. Whether because of the broader top, the more pronounced hood and trunk lines, or the wrap-around front and rear windows, the effect is a longer appearing car. A new series in four models designated "Bel Air," with a distinctive styling feature—parallel bands of chrome trim on the rear fender surrounding a contrasting color and the Bel Air name—has been added to give Chevrolet market penetration in a higher price class than it has previously reached.

Numerous engineering changes are incorporated in the '53s. Extensive reworking of the two power plants increased displacement, compression ratio and horsepower. The standard engine (for conventional gearshift) has had its bore and stroke increased. Displacement is 235 cubic inches from 216 in '52s. Compression ratio is up from 6.6 to 7.1 to 1. Horsepower is 108, against 92 last year. A reduction in rear axle ratio and



Oldsmobile Is Hotter

Oldsmobile revamps its electrical system to 12 volts with a larger 70-ampere-hour battery, new starter, generator, voltage regulator, lights and wiring. Capacity of the new 12-volt battery is nearly 30 per cent greater than 1952's model to carry the increased load of electrical accessories



Buick Changes to V-8

Golden anniversary celebration for Buick is a new 90° V-8 engine with a piston displacement of 322 cubic inches, 4-inch bore and 3.2-inch stroke. Compression ratio is 8.5 to 1. The new power plant develops 188 horsepower in the Buick Roadmaster and 170 in the Super at 4000 rpm.

the higher compression increases economy. Electrical system modifications have been made to put higher voltage at the spark plug gap. One of the more interesting electrical changes is use of non-metallic high tension cables replacing copper in some wire to eliminate radio interference.

Core of this cable is linen impregnated with a semi-conducting material and enclosed in a neoprene jacket. An automatic choke is now standard. The engine used with Powerglide now has its own name—Blue Flame—and will be called completely new by the ad writers. Beside the changes made in the standard engine this one has aluminum pistons; eliminating the need for piston pin bushings, its bearings have been redesigned, and a full pressure lubrication system is used. This engine with compression ratio of 7.5 to 1 develops 115 horsepower, 10 more than last year's. Powerglide's changes are the same in principle as those of Dynaflow (described below). As the first low price car to take the plunge, Chevrolet will offer Saginaw Steering Gear's power steering device.

Buick—Fifty years have passed since David Buick roamed Flint streets looking for some one to stake him to \$10,000. He found the men who would take a chance on his overhead-valve two-cylinder engine, and now three engine changes and millions of cars and dollars later, the division is more than ever wedded to the same design principles. Its new V-8 engine is engineered to have at least as promising a future as the Fireball straight eight which was introduced 22 years ago. Rated at 188 hp, with a compression ratio of 8.5 to 1, and a displacement of 322 cubic inches, the V-8's horsepower potential is much greater if and when higher octane gas permits its compression ratio to be increased to 12 to 1.

The new engine's installation was originally expected only in Roadmasters, but Buick announced that the Super will also have it. Using the four-barrel carburetor adopted in '52 models the engine develops its maximum horsepower. The engine in the Super series, with a two-barrel carburetor, turns out 170 hp. The new engine

Auto, Truck Output

U. S. and Canada

	1952	1951
January	409,406	645,688
February	467,691	658,918
March	517,207	792,550
April	576,505	680,281
May	546,673	695,898
June	560,947	653,682
July	246,461	522,858
August	293,722	571,442
September	592,253	505,758
October	645,862	558,971
November	550,885	480,323
December		402,729
Total		7,179,161
Week Ended	1952	1951
Dec. 8	129,005	116,932
Dec. 13	121,590	115,627
Dec. 20	134,933	107,186
Dec. 27	102,553	89,488
Jan. 3	108,128	53,601
Jan. 10	135,000*	92,741

Sources: Automotive Manufacturers Association, Ward's Automotive Reports. *Preliminary.

is more than a foot shorter and 180 pounds lighter than the in-line eight. The straight-eight remains the Special series power plant, but with an increased compression ratio of 7.6 to 1 from 7.2, it now develops 130 hp.

Stylewise, the new Buicks are distinguished by eyecatching details. Headlights and rear fender styling are influenced by the experimental XP-300; a higher rear fender and application of chrome trim in the rear fender's embossing are easy to spot. Bolt-on wheelcovers, simulating wire spoke wheels and with a distinctive "V" symbol, are going to be a popular optional item at extra-cost.

Roadmasters this year are being put on the Special's two wheelbase lengths. For the four-door four-hole this means a wheelbase reduction of 4½ inches to 125½ inches. The two-door Roadmasters shorten up by the same amount to a 121½-inch wheelbase. All four Roadmaster models are reduced \$135. Supers are up \$125, while Specials come down \$11 to \$86.

Called the Twin Turbine Dynaflow, the new Buick torque converter answers the complaints of users who deplored the engine roar as it wound up to get going and slippage when accelerating. The unit's redesign incorporates a secondary turbine and planetary gear set to get an increase in torque

multiplication. In action the flows from the pump through first turbine then on through second turbine before being reected through the stator and b to the pump. The first tur drive's the ring gear which is attached to the output shaft. The turbine delivers the initial torque multiplied by the planetary gear when the car gets under way. As car speed increases the second turbine does increasingly more of the work until at cruising speed the second turbine is doing all the driving and the first turbine is free to turn the wheels. A 200 rpm reduction in engine speed during take-off and acceleration reduces the engine roar.

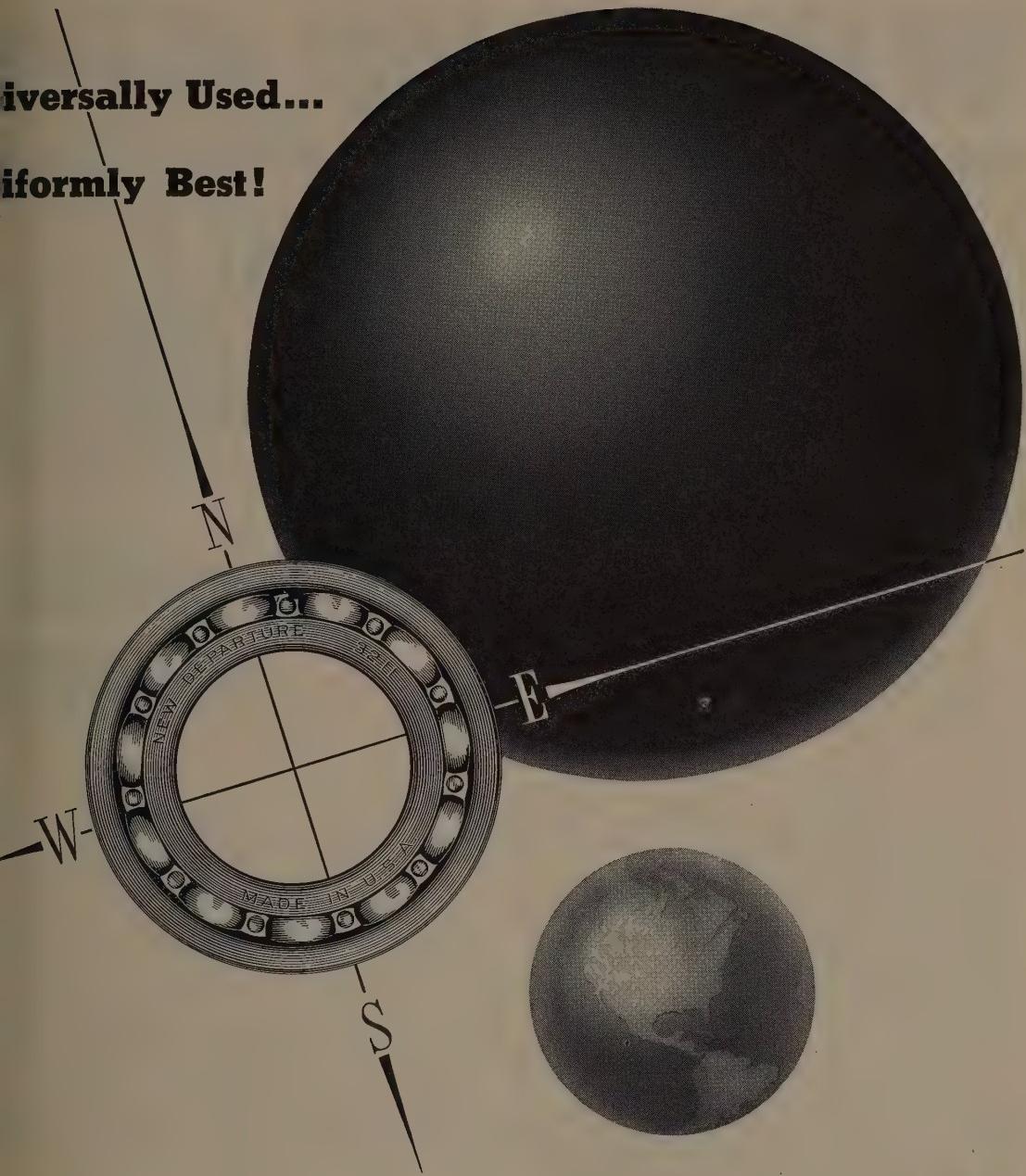
Cadillac — More stainless steel is being applied around the front fenders, Le Sabre-like bumper guards, rocker panel and lower fender application of chrome comprise major exterior styling changes for Cadillac. Under the hood is the engine now rated at 210 hp. Compression ratio is 8.25 to 1. Virtually elimination of back pressure is claimed. Better economy without sacrifice in performance results from the compression ratio increase and a lower rear axle ratio.

Oldsmobile—New thrust for Rocket engine in all Oldsmobiles is provided by an 8 to 1 compression ratio and a 12-volt electrical system. The Super 88 and 98 series, with four-barrel carburetors, develops 165 hp, up five points. The deluxe 88 also raises its horsepower rating five points to 150.

The 98 series is two inches longer over-all than last year. Appearance changes of the line begin at the grille, the middle grille member being an airfoil section supported by the bumper guard. Above and behind this is a squared-off and longer hood. Side view shows a slimmer diagonal sash on Super 88s and 98s. New stone shield treatment on straight-topped rear fenders.

Hydra-matic indicator dial has been removed from the steering column and now, electrically activated, is part of the instrument cluster. As an extra cost option a resilient crash pad forming the top of the dash panel is available. Air conditioning is offered (\$594) by Olds, Buick and Cadil-

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iformly Best!



roughout the world, New Departure ball bearings are in universal use . . . in motor vehicles and machinery . . . in instruments and implements . . . conveyor lines and textile looms. Providing support for moving parts, they reduce friction, wear and maintenance . . . permit bigger loads and better design.

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GRAPH-MO® TOOL STEEL

that machines 30% faster

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Minimum tendency to pick up, scuff or gall
Uniform response to heat treatment

PLUS

ADVANTAGES OF HOLLOW BARS

No drilling
Finish boring is first step
Less machining time
Less scrap loss
More parts per ton of steel

EQUALS

ADVANTAGES OF

"GRAPH-MO
HOLLOW-BAR"

New "GRAPH-MO HOLLOW-BAR" combines the faster machining and longer wear of Graph-Mo with the economy of a hollow bar section.

Graph-Mo® graphitic tool steel now comes with a built-in hole! "Graph-Mo Hollow-Bar" is a new Timken® steel product that combines all the proven advantages of Graph-Mo with the economies of a hollow bar section.

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Graph-Mo has minimum tendency to pick up, scuff or gall, gives uniform response to heat treatment, is the most stable tool steel made!

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For complete information on this new Timken steel product write today to The Timken Roller Bearing Company, Steel and Tube Division, Canton 6, Ohio. Cable address: "TIMROSCO".

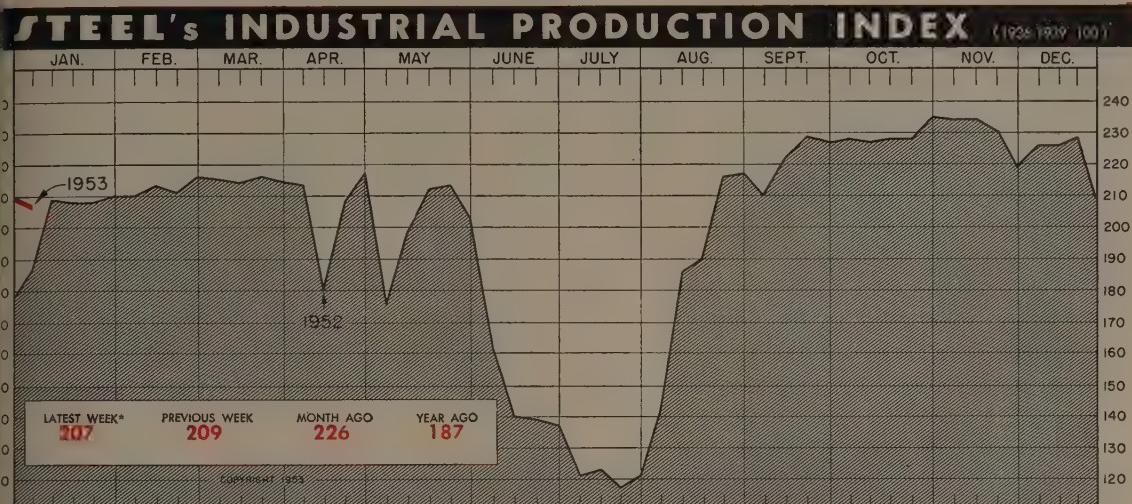
YEARS AHEAD—THROUGH EXPERIENCE AND RESEARCH



TIMKEN
TRADE MARK REGD. U.S. PAT. OFF.
Fine Alloy
STEEL

SPECIALISTS IN FINE ALLOY STEELS, GRAPHITIC TOOL STEELS AND SEAMLESS TUBING

The Business Trend



Week ended Jan. 6

Based upon and weighted as follows: Steelworks Operations 35%; Electric Power Output 23%; Freight Car Loadings 22%; and Automotive Assemblies (Wards' Reports) 20%.

Business is moving at a fast pace. Many metalworking executives expect to maintain strong production throughout most of the year. Index remains at a high level

BUSINESS is entering the first quarter at high-for-the-season momentum. Industrial production is running about 11 per cent over the nation's output a year ago.

This over-the-year rise is shown in STEEL's industrial activity index. The week ended Jan. 3, the red line on the chart took a seasonal decline to 207 per cent of the 1936-39 average, compared with a drop

187 per cent in the comparable week of last year. Strong output throughout the U. S. is indicated prime indicators of production.

Slight Declines—Steel mills in the week ended Jan. 3 were producing at 106 per cent of the capacity the industry had on Jan. 1, 1952. Utilities were generating 6 per cent more electricity than in the first week of last year, while freight car loadings are estimated to have risen nearly 7 per cent. Automotive companies during the holiday weeks showed the smallest seasonal decline by trimming their auto-truck assemblies by only 20 per cent. Last year, automotive production in the first week in January plunged to around 35 per cent of normal turnout.

Behind these increases are three

factors: Rising demand for both defense and consumer products and business optimism due to the forthcoming change in presidential administration.

Defense production is expected to rise throughout most of 1953. Unfilled government orders now stand at \$81 billion, an assurance of sizable defense output for a long time ahead.

The civilian production scene is also bright. Makers of consumer durables are particularly optimistic over this year's prospects. Since mid-summer of 1952, consumers have shown an increasing interest in appliances and other durable items. Many manufacturers see a year of firm demand and an increasing supply of materials. Some companies are trying almost anything to boost their civilian output.

Time for a Change—The Republican administration, aside from de-controlling materials, is expected to show more understanding toward businessmen's other problems. Many businessmen expect a certain degree of tax relief in the next four years. Business optimism, now reflected in the stock market, is also mirrored to some extent in indus-

trial output. Manufacturers who shelved new designs before the election, are now dusting them off and starting to assemble new products.

Steel Production Sturdy...

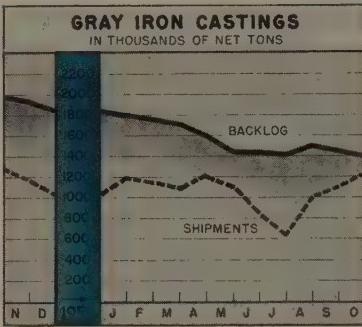
With high demand for steel apparently assured for the first quarter, steel mills are continuing to keep their production high. The American Iron & Steel Institute estimates that furnaces in the week ended Jan. 10 poured 2,213,000 net tons of steel.

Auto Output Still High...

Automotive companies are out to keep production strong in the first quarter.

With this goal before them, manufacturers of passenger cars and trucks started the year by trimming their output far less than seasonally. U. S. auto-truck production in the week ended Jan. 3 totaled 103,176 vehicles, *Ward's Automotive Reports* estimated. This turnout is more than double the number of cars and trucks assembled in the U. S. during the first week of 1952.

The automotive industry is expected to return quickly to production levels attained before the strike. U. S. and Canada are estimated to have produced 135,000

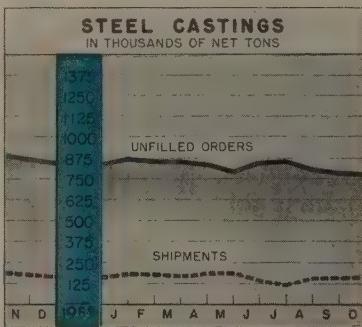


Gray Iron Castings

Thousands of Net Tons

	Shipments 1952	Shipments 1951	Backlogs* 1952	Backlogs* 1951
Jan.	1,999	1,364	1,801	2,298
Feb.	1,155	1,234	1,766	2,392
Mar.	1,172	1,440	1,711	2,390
Apr.	1,205	1,363	1,614	2,337
May	1,101	1,396	1,459	2,229
June	835	1,309	1,445	2,162
July	636	1,029	1,410	2,208
Aug.	1,002	1,219	1,513	2,145
Sept.	1,119	1,115	1,451	2,055
Oct.	1,233	1,302	1,392	1,983
Nov.	1,184	1,184	1,934	1,934
Dec.	1,032	1,032	1,847	1,847
Total	13,768			

* For sale. U. S. Bureau of the Census.

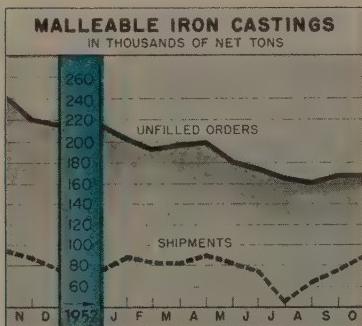


Steel Castings

Thousands of Net Tons

	Shipments 1952	Shipments 1951	Unfilled Orders* 1952	Unfilled Orders* 1951
Jan.	183.7	174.1	869.3	675.4
Feb.	174.6	164.0	856.9	707.4
Mar.	173.7	190.7	857.1	779.7
Apr.	175.1	181.9	843.0	846.9
May	173.6	189.2	804.7	881.7
June	141.6	184.7	846.5	895.1
July	119.0	147.2	855.0	830.0
Aug.	150.2	177.1	809.4	944.2
Sept.	158.4	160.7	781.9	918.0
Oct.	165.2	189.8	772.9	895.1
Nov.	176.7	176.7	865.0	846.4
Dec.	16.1	16.1	846.4	846.4
Total	2,093.3			

* For sale. U. S. Bureau of the Census.

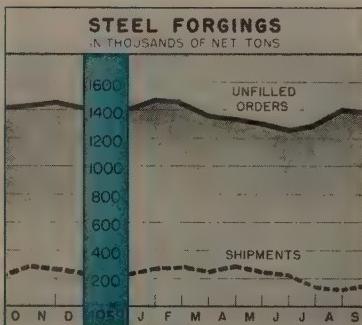


Malleable Iron Castings

Thousands of Net Tons

	Shipments 1952	Shipments 1951	Unfilled Orders* 1952	Unfilled Orders* 1951
Jan.	87.0	92.5	203	234
Feb.	82.9	89.0	193.1	255
Mar.	81.0	101.7	196.9	267
Apr.	89.3	97.3	198.2	216
May	81.8	100.8	180.4	275
June	74.4	93.7	173.4	256
July	45.3	76.8	166.6	263
Aug.	63.7	90.7	162.8	249
Sept.	75.9	82.3	168.4	245
Oct.	88.1	93.9	168.6	238
Nov.	88.2	88.2	221	221
Dec.	76.0	76.0	215	215
Total	1,082.9			

* For sale. U. S. Bureau of the Census.



Steel forgings

Thousands of Net Tons

	Shipments 1952	Shipments 1951	Backlogs* 1952	Backlogs* 1951
Jan.	271*	138	1,472*	709
Feb.	277*	129	1,461*	781
Mar.	266*	161	1,360*	875
Apr.	277*	154	1,349*	924
May	263*	266*	1,319*	1,203*
June	224*	249*	1,248*	1,264*
July	132*	220	1,290*	1,301*
Aug.	121*	240	1,399*	1,436*
Sept.	150*	226*	1,392*	1,419*
Oct.	280*	280*	1,427*	1,427*
Nov.	2.6*	2.6*	1,446*	1,446*
Dec.	232*	232*	1,411*	1,411*

U. S. Bureau of the Census. * Data for these months based on reports from commercial and captive forge plants with monthly shipments of 50 tons or more. Previous data based on reports from commercial forge shops producing 3,000 tons or more per year.

Charts Copyright 1953 STEEL

Issue Dates on other FACTS and FIGURES Published by STEEL

Construction.....	Nov. 24	Gear Sales	Dec. 22	Ranges, Elec.	Dec. 8
Durable Goods.....	Sept. 22	Indus. Production..	Dec. 22	Ranges, Gas	Dec. 1
Employ., Metalwkg.	Oct. 27	Ironers	Dec. 22	Refrigerators	Dec. 8
Employ., Steel	Dec. 15	Machine Tools	Dec. 15	Steel Shipments	Nov. 3
Fab., Struc. Steel	Dec. 22	Pumps	Dec. 8	Vacuum Cleaners	Dec. 22
Foundry Equip.	Dec. 29	Prices, Consumer..	Dec. 1	Wages, Metalwkg.	Nov. 17
Furnaces, Indus.	Dec. 29	Prices, Wholesale..	Dec. 29	Washers	Dec. 29
Freight Cars	Dec. 29	Radio, TV	Dec. 15	Water Heaters	Dec. 8

cars and trucks in the week ended Jan. 10.

Savings Up, Debts Up . . .

People are saving more; people are getting further into debt. This apparent contradiction is seen in reports by the Federal Reserve Board on consumer credit and the Securities & Exchange Commission on individual saving. This means that one segment of the population is quickly going into debt, while the other group is salting money away. Consumer debt rose \$2.8 billion to \$22.8 billion in the year ended Dec. 1. On the other hand, individual savings in that year climbed rapidly after the spring taxpaying season of 1952. Liquid savings of persons in the U. S. reached \$5.6 billion in the third quarter, the highest total savings since the fourth quarter of 1945.

Manufacturers of civilian goods could well look into these diverse trends. The buying segment of the nation may have about spent its limit. This may be the time to introduce revolutionary products. Civilian industries this year may be forced to step up sales techniques to lure dollars from the public.

Industrial Production Up . . .

Industrial production in December reversed its normal trend for the month by inching up instead of down. Booming defense and consumer production outbalanced the holiday slowdown at the end of the month. The Federal Reserve Board estimates that the nation's industrial output in December rose 1 point to 234 per cent of the 1935-1939 average. Durables production last month rose 5 points to 30 per cent, while nondurables output remained at 197 per cent of the 1935-1939 average.

Coal Demand To Increase . . .

Producers of bituminous coal may look forward to increasing demand from the nation's manufacturers. So says the Appalachian Coals Inc., which predicts increased soft coal demand by all major coal-using industries except the railroads. Bituminous mines of the U. S. will turn out 483.5 million

BAROMETERS OF BUSINESS

INDUSTRY

	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
Steel Ingot Output (per cent of capacity) ² . . .	106.0	103.0	98.0
Electric Power Distributed (million kw hr) . . .	6,500 ¹	6,921	6,662
Bituminous Coal Output (daily av.—1000 tons) . . .	1,041	1,701	1,317
Petroleum Production (daily av.—1000 bbl) . . .	6,620 ¹	6,594	6,187
Construction Volume (ENR—millions) . . .	\$185.0	\$154.5	\$159.1
Automobile, Truck Output (Ward's—units) . . .	108,128	102,558	53,601

TRADE

Freight Car Loadings (unit—1000 cars) . . .	700	521	613
Business Failures (Dun & Bradstreet, number) . . .	89	95	126
Currency in Circulation (millions) ³ . . .	\$30,578	\$30,732	\$29,143
Dept. Store Sales (changes from year ago) ³ . . .	+57%	+4%	-21%

FINANCE

Bank Clearings (Dun & Bradstreet, millions) . . .	\$16,384	\$20,168	\$17,897
Federal Gross Debt (billions) . . .	\$267.1	\$266.9	\$259.4
Bond Volume, NYSE (millions) . . .	\$12.6	\$14.0	\$11.2
Stocks Sales, NYSE (thousands of shares) . . .	7,400	6,997	5,700
Loans and Investments (billions) ⁴ . . .	\$78.8	\$79.0	\$74.9
United States Gov't. Obligations Held (billions) ⁴ . . .	\$32.6	\$32.9	\$32.5

PRICES

STEEL's Weighted Finished Steel Price Index ⁵ . . .	181.31	181.31	171.92
STEEL's Nonferrous Metal Price Index ⁶ . . .	215.4	213.2	234.9
All Commodities ⁷ . . .	109.5	109.3	113.6
All Commodities Other Than Farm and Foods ⁷ . . .	112.7	112.8	116.6

*Dates on request. ¹Preliminary. ²Weekly capacities, net tons: 1951, 1,999,035; 1952, 2,077,040. ³Federal Reserve Board. ⁴Member banks, Federal Reserve System. ⁵1935-1939=100. ⁶1936-1939=100. ⁷Bureau of Labor Statistics Index, 1947-1949=100. ⁸Not available.

tons of coal this year, or about 19.5 million tons more than soft coal production in 1952.

Laundry Equipment To Rise . . .

Makers of home laundry equipment are expecting to hang up a record or near-record sales volume in 1953. Production of washers, spinners and dryers this year should equal or top the industry's all-time high of 5 million units produced in 1950, says Frederick M. Mitchell, president of the Home Laundry Manufacturers' Association.

Matching present high demand, manufacturers of household washers in November sold 293,079 units, more than 11 per cent over sales in November, 1951. Sales of automatic tumbler dryers in November totaled 74,370 units, or 41 per cent over the same month a year earlier. Ironer sales that month, on the other hand, aggregated 19,724 units, or 0.4 per cent under factory sales in November, 1951.

More Loads by Rail . . .

Freight car loadings in the first quarter are expected to rise 1.7 per cent over the first quarter of 1951. So says the Association of American Railroads, after surveying its 13 regional shippers advisory boards. Railroad shipments

of automobile trucks may increase 19 per cent, while vehicle parts will rise 27 per cent. Shipments of iron and steel may rise 2.8 per cent, while loadings of other metals are expected to increase 2.4 per cent.

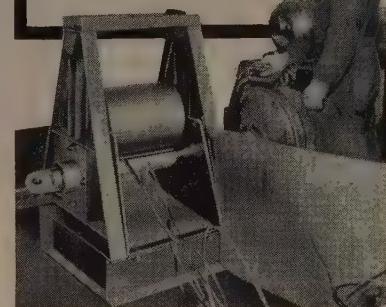
Structurals May Tower Higher . . .

Despite possible declines in housing and industrial construction during 1953, producers of fabricated structural steel hope to raise production to meet increased demand from commercial, military and other construction activities. The American Iron & Steel Institute says a new record in structurals output may be reached this year, if Washington quickly relaxes materials controls. Preliminary reports show that shipments of structurals totaled 2.6 million tons in 1952, compared with 2.7 million tons in 1951, the decline resulting from the steel strike.

Trends Fore and Aft . . .

Sales of the gearing industry dipped 6 per cent in November . . . New rubber consumption in November rose 9 per cent . . . Payroll in the iron and steel industry in October rose 13 per cent over October, 1951 . . . Machine tool builders are saying the expected pickup in defense orders is slow developing.

Clear your
floor area



. . . of scrap strip

Quickly . . .

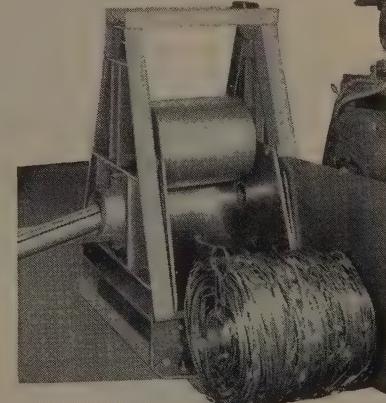
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Profitably . . .

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Designed • Fabricated • Erected

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States steel-making capacity is just
10 miles North of Lima, at Beaverdam
Ohio. Your Ohio Rolls come
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Men of Industry



GEORGE B. McMEANS
... V. P.-operations at Kaiser Steel



VAN H. LEICHLITER
... AS&W vice president-operations



O. M. MARQUARDT
... mfg. manager at Tocco

George B. McMeans was appointed vice president in charge of operations for Kaiser Steel Corp. with headquarters at the Fontana, Calif., plant, where for the last two and half years he has been works manager.

James P. Curran was made purchasing agent for Mine Safety Appliances Co., Pittsburgh, to succeed Henry B. Stafford, named superintendent of production control.

Harry W. Poole becomes director of quality control for Superior Tube Co., Norristown, Pa. He formerly was with Brown Instrument Division, Minneapolis - Honeywell Regulator Co. Richard L. Hoff was made development metallurgist.

T. G. Schrock was promoted to executive vice president, Euclid Electric & Mfg. Co., Madison, O. He has been a vice president since 1936.

The Watertown, N. Y., Division of New York Air Brake Co. appointed George E. Johnson assistant to the general superintendent; Floyd E. Lendrum, acting foundry superintendent; Robert W. Carpenter, foundry metallurgist; and Charles J. Carr, general foreman of the foundry.

Van H. Leichliter was elected vice president-operations, American Steel & Wire Division, U. S. Steel Corp., Cleveland. Since Feb. 1, 1950 assistant vice president-operations, he now succeeds Walter F. Munford who assumed the presidency of the wire division Jan. 1.

William G. Whyte was made assistant to vice president of United States Steel Corp. Formerly assistant director of public relations for U. S. Steel in Chicago, he now takes over his post in Washington.



WILLIAM G. WHYTE
... U. S. Steel Washington post

O. M. Marquardt was made manufacturing manager, Tocco Division, Ohio Crankshaft Co., Cleveland. Formerly with Budd Co., he joined Tocco in 1948.

Columbia Electric Mfg. Co., Cleveland, appointed Homer W. Sussman general sales manager. He has held various positions in the company's engineering and sales departments since affiliation in 1935.

Appointments in the casting division, Aluminum Co. of America, include Sanford H. Bennett as chief industrial engineer, with offices in Pittsburgh, to replace the late Rodney C. Rankin. Mr. Bennett was works manager, Buffalo Works, and is succeeded by H. E. Cook. Norbert C. Hilbrecht was named plant superintendent at Buffalo and is succeeded by Sherwood Willard as chief industrial engineer, Buffalo.

Joseph V. Smith was elected chairman of the board and chairman of the executive committee and James H. Knowles as president, Hubbard & Co., Pittsburgh.

Ralph N. Fitzpatrick was appointed Cleveland district manager, Electro Metallurgical Co., division of Union Carbide & Carbon Corp. He succeeds E. E. Wright, who con-

tinues with the company as a consultant in the Cleveland area.

Joseph A. Pfaff was appointed special sales representative for **Latrobe Steel Co.** He continues headquarters in New York where he is succeeded as district manager of the New York branch by **W. J. Kennedy**. **Theodore H. Fortmeier** was appointed district manager of the new Milwaukee branch office.

Named to head up the fabricating division of **Atlantic Steel Co.**, Atlanta, is **B. W. Bird**, who, for the last ten years, has been manager of the company's manufactured products sales department. He has been with Atlantic Steel since 1934.

Samuel H. Wood was appointed manager of the Marion Forge Division plant, **Eaton Mfg. Co.**, Cleveland. He has been chief engineer for the last 18 years with Timken-Detroit Axle Co.'s Forge Division.

South Chester Corp., Lester, Pa., elected **William C. Hale Jr.** as vice president. He has served since 1946 as Southco's manager of operations.

Louis Allis Jr., formerly vice president-sales, was elected a vice president of **Louis Allis Co.**, Milwaukee, and joins with his brother in overall active management of company operations. **C. G. Skidmore**, sales manager, was elected vice president-sales and also performs as general sales manager.



LOGAN T. JOHNSTON
... heads sales as Armco V. P.



WALLACE B. QUAIL
... Armco's sales manager

Armco Steel Corp., Middletown, O., elected **Logan T. Johnston** vice president in charge of sales and **Wallace B. Quail** as manager of the sales division. Mr. Johnston, formerly general manager of sales, succeeds the late **J. A. Ingwersen**.

Vapor Heating Corp., Chicago, appointed **William C. Keeran** executive engineer. He will supervise engineering, research and design of company products. He also continues as vice president in charge of Roth Mfg. Co., subsidiary.

Richard E. Ballantine was made plant manager for **Westinghouse Electric Corp.**'s welding-electrode plant soon to be constructed at

Montevallo, Ala. Until completion of the plant, which is expected in September, 1953, Mr. Ballantine will continue as development engineer on brazing alloys, motor and control division.

Robert Guelcher was made industrial engineer by **Ajax Flexible Coupling Co. Inc.**, Westfield, N. Y. He was assistant works manager of Uniflow Mfg. Co.

W. M. Martin, formerly vice president-sales for **Crittall Inc.**, Waukesha, Wis., was appointed assistant manager, steel window department, **Ceco Steel Products Corp.**, Chicago.

Arthur L. Morgan was made chief purchasing agent for the **Natrium** plant of **Columbia-Southern Chemical Corp.**, New Martinsville, W. Va.

United States Pipe & Foundry Co., Burlington, N. J., appointed **C. N. Brown** sales manager for cast iron pipe.

Durant Mfg. Co., Milwaukee, elected **William W. Winkler** president to succeed his father, **William L. Winkler**, now chairman of the board. **Robert B. Winkler** was made vice president and **Leo A. Nourie**, manager of the eastern division at Providence, R. I., was elected secretary. **G. F. Redmond** becomes a director.

Alexander M. Cadman Jr. was elected treasurer and general manager, **A. W. Cadman Mfg. Co.**



LOUIS ALLIS JR.
... promoted by Louis Allis Co.



C. G. SKIDMORE
... Louis Allis V. P.-sales



You're sighting on the moose through a Weaver Scope,
made by W. R. Weaver Company, El Paso, Texas.

The Superior Tube That Puts You "On Target"

Sitting specification bull's-eyes to help our customers hit their production targets is a Superior specialty.

A case in point is illustrated above. The customer, W. R. Weaver Company manufactures high-quality telescopic sights for sporting and target rifles. The carbon steel tube in which the lens elements, reticule and eye piece are mounted must be strong and rigid. Tube material must have excellent machining qualities to permit fast, economical, precision working. Because salability depends a good bit on fine appearance, the tube must be extremely smooth and free from pits and scratches. This is particularly true of the larger sizes where tube ends are expanded, making imperfections more evident. Inside surface must also be smooth and to accurate dimensions.

Ordinarily you might expect tubing to fit such requirements for smoothness plus temper and machinability would be a "premium" item carrying extra charges for special handling.

Not at Superior. Here we can take the most exacting specifications in stride because of our experience and "know-how" backed by highly developed production equipment and extensive research and testing facilities.

If you have need for fine, small tubing to do a tough job well, check with us. We can probably fill your requirements from the stocks of our distributors who are located in principal cities. Write Superior Tube Company, 2005 Germantown Ave., Norristown, Pennsylvania.

BE SURE ABOUT TUBING—
SPECIFY

Superior
THE BIG NAME IN SMALL TUBING

All analyses .010" to $\frac{3}{8}$ " O.D.
Certain analyses (.035" max. wall)
up to $1\frac{1}{2}$ " O.D.

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West Coast: Pacific Tube Company, 5710 Smithway St.,
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Available in:

Carbon Steels:

A.I.S.I.—C-1008, MT-1010, MT-1015, C-1118,
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E-52100

Stainless Steels:

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Nickel Alloys:

Nickel, "D Nickel"*, "L Nickel"*, "Monel"*,
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Beryllium Copper:

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International Nickel Company



HANS K. REITZ
... Colonial Broach factory manager



IRVING T. BENNETT
... Revere Copper & Brass V. P.-mfg.



F. C. CAMPBELL JR.
... Scaife purchasing agent

Pittsburgh. M. D. Roberts becomes secretary and Adam Komoroski foundry superintendent.

Hans K. Reitz was appointed factory manager, Colonial Broach Co., Detroit. Since 1947 he has served as superintendent of machine construction. In his new position he succeeds William Kukuk, resigned to devote full time to sales of Colonial drill jig bushings.

J. R. Alexander was appointed general sales manager, Quaker Rubber Corp., division of H. K. Porter Inc., Philadelphia.

Irving T. Bennett was appointed vice president-manufacturing, Revere Copper & Brass Inc., New York. A director of the company since 1951 and a vice president since 1944, he continues to head up the company's aluminum operations at Baltimore with headquarters in New York. His successor at Baltimore is Alexander N. Aird, formerly works manager.

Skinner Electric Valve Division, Skinner Chuck Co., Norwalk, Conn., appointed **William E. Rogers** as sales manager. He formerly was with General Motors Corp.

F. C. Campbell Jr. was appointed purchasing agent, Scaife Co., Pittsburgh, which he joined in 1944 as assistant auditor. Harry L. Oberlin, for 42 years director of purchases, has retired.

Hubert J. McCormick was appointed sales manager, Caldwell plant, Link-Belt Co., Chicago, succeeding Erwin A. Wendell, currently on leave.

Donald U. Kudlich was made manufacturing co-ordinator for the machinery divisions of Food Machinery & Chemical Corp., San Jose, Calif.

OBITUARIES...

Charles H. Currier, 66, chairman of Kewanee-Ross Corp., Buffalo, died Dec. 22.

Lyman D. Adams, 64, vice president, Associated Spring Corp., Bristol, Conn., died Jan. 2.

Robert J. Weber, 58, assistant manager, central sales district, Westinghouse Electric Corp., Pittsburgh, died Dec. 28.

Chester O. Barnes, sales manager, Hoist Division, Harnischfeger Corp., Milwaukee, died Dec. 17.

Arthur C. Bishop, 74, former secretary and director of Oglebay, Norton & Co., Cleveland, died Jan. 1. He also held executive positions

with many of the companies associated with Oglebay, Norton & Co. He helped organize Ferro Engineering Co. in 1929 and served as its secretary and a director for many years. In 1951 he was made chairman of its board.

H. E. Sawyer, 74, formerly vice president and treasurer of Macwhyte Co., Kenosha, Wis., died Dec. 28.

Raymond W. Vonasch, 40, manager of federal and marine sales for Ward Leonard Electric Co., Mt. Vernon, N. Y., died Dec. 2.

Joseph K. Harrison Sr., 74, long associated with Armco Steel Corp. in open-hearth practice, died Dec. 20 at his home in Butler, Pa. He retired in 1945.

W. E. Karnuth, 49, district sales manager, Peter A. Frasse & Co. Inc., Syracuse, N. Y., died Dec. 1.

W. Selwyn Ramsay, 79, founder and president, Bay City Shovel Inc., Bay City, Mich., died Dec. 2.

Albert J. Doermann, 70, chairman of the board of Titan Abrasives Co., Chicago, died in Florida Dec. 30.

W. E. Byrne, 58, midwest district manager, Simonds Abrasive Co., Chicago, died Dec. 27.

J. J. Egan, 63, former officer and part owner of Aluminum & Brass Co., Lockport, N. Y., died Dec. 28.

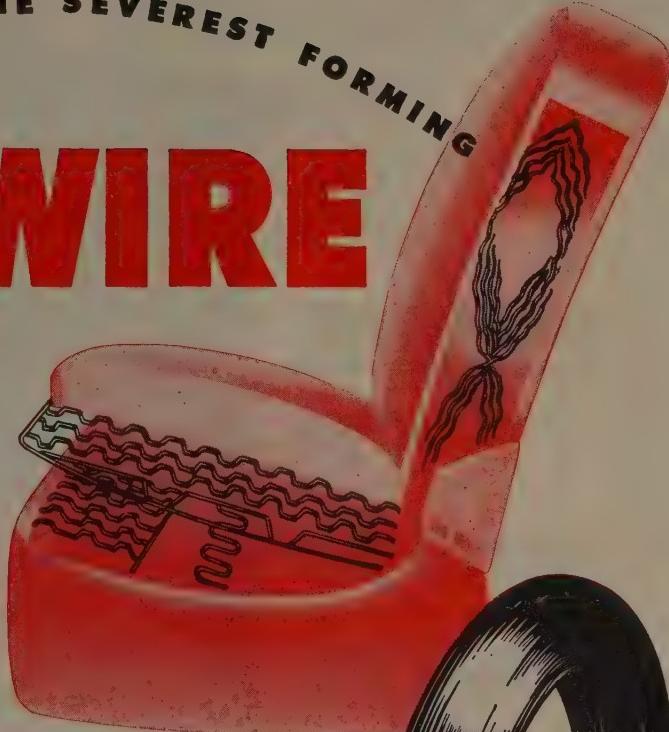
M. Homer Forster, 74, vice president, John M. Forster Co., Rochester, N. Y., died Dec. 26.

STANDS UP UNDER THE SEVEREST FORMING

WICKWIRE

HARD DRAWN MB SPRING

WIRES



...Selected and Preferred for Zig-Zag Spring Wire in Automobile Seat and Back Cushions

Hard Drawn MB Spring Wire produced by Wickwire is used extensively as zig-zag spring wire in the construction of the latest ribbon type of spring units for automobile seat cushions.

Such wire demands the maximum degree of strength, ductility and uniformity in order to withstand the extremely severe deformation necessary in the fabrication of these springs. Painstaking care must be exercised in the selection of the right steel and in subsequent processing operations.

Wickwire Hard Drawn MB Spring Wire measures up in every way to these exacting demands because every step of its production, starting in our own open hearth furnaces, is under constant control, subject to uncompromising testing and inspection.

Widespread use of Wickwire Hard Drawn MB Spring Wire in this severe service is your assurance that when you select this high-carbon wire for your particular application, you can always count on getting the finest.

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WICKWIRE WIRE



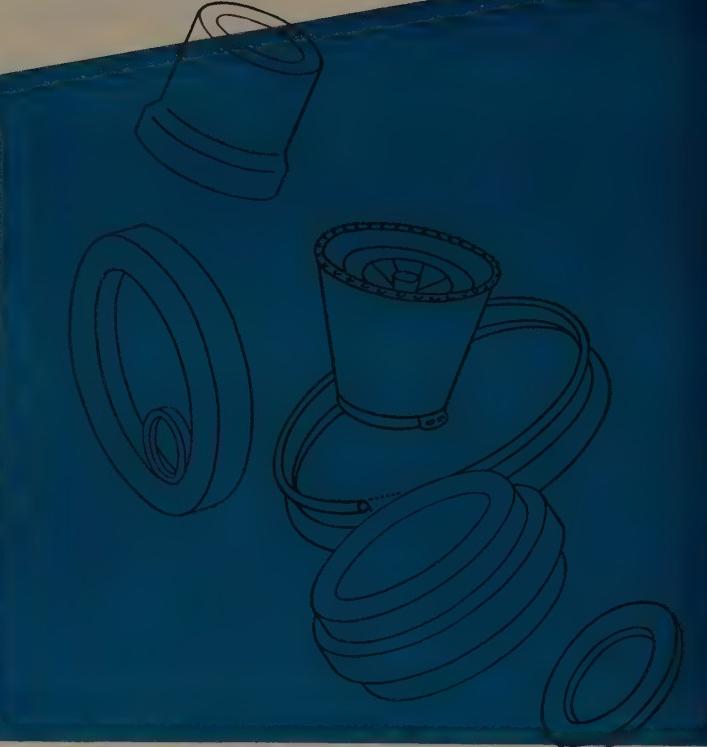
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**GO
"AMERICAN"
FOR
CIRCULAR
WELDED**

PRODUCTS



Send for your copy
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Welding is our business. Let us put our 34 years of experience to work for you.

Complete designing, engineering and metallurgical service is available where fusion or resistance welding of either ferrous or non-ferrous metals is required.

**AMERICAN WELDING &
MANUFACTURING CO. - WARREN, OHIO**

LET US SEND YOU MORE FACTS OR
BETTER YET SEND US YOUR SPECIFICATIONS
FOR PROMPT QUOTATIONS

CANNED MOTORS—Motors driving hot water circulating pumps for a nuclear reactor have both the stator and rotor encased in stainless steel. What is the air gap in a conventional motor is filled with flowing hot water, the same fluid that is being pumped through the reactor circuit. Leakage must be kept small so the motor can't drive the pump through seals. Rotor must be contained within the fluid circuit and is continuously exposed to water that is hot both as to temperature and radioactivity. The motors and integrally built pumps designed for the atomic powered submarine must also pass the Navy test for high shock.

TWO WAY SQUEEZE—Producing high pressure ferrous forgings weighing about a ton is a job that calls for unusual techniques and equipment. When Cameron Iron Works found it necessary to change from castings to forgings to meet job requirements, it was necessary to have a new press built unlike any others available. The press decided upon and now in operation has a 5000-ton capacity on the main vertical ram and two horizontal rams rated at 2000 tons. For most forgings the side rams hold the split dies together while the vertical ram displaces metal into the cavities of the die and pierces although the process is sometimes reversed when shape of part requires horizontal piercing. p. 66

DEPENDABILITY CHALLENGED—How dependable are the findings of the National Bureau of Standards? That is a question raised by the Senate Small Business Committee on finding that results of tests by two private institutions—Massachusetts Institute of Technology and Catholic University—on a commercial product designed to prolong the life expectancy of lead acid storage batteries are contradictory to results of similar tests by the bureau. The product is a battery additive and is produced by Pioneers Inc., Oakland, Calif. Tests by the two universities were conducted at the request of the committee as a public service and at no cost to the government. They supported the manufacturer's claims while the bureau reported the additive had no beneficial effect.

MANGANESE RECOVERY—A more efficient hydrometallurgical recovery of manganese from low grade ores is now made possible by a proper chemical regulation of two soluble salts, the Bureau of Mine reports. The process involves increasing control of the proportions of manganese sulphate and dithionate to each other. Best recovery is achieved when either all sulphate or all dithionate results from the rapid reaction that takes place when sulphur dioxide and manganese dioxide react together. In the past, the correct proportions in which they form was an unknown quantity. Bureau investiga-

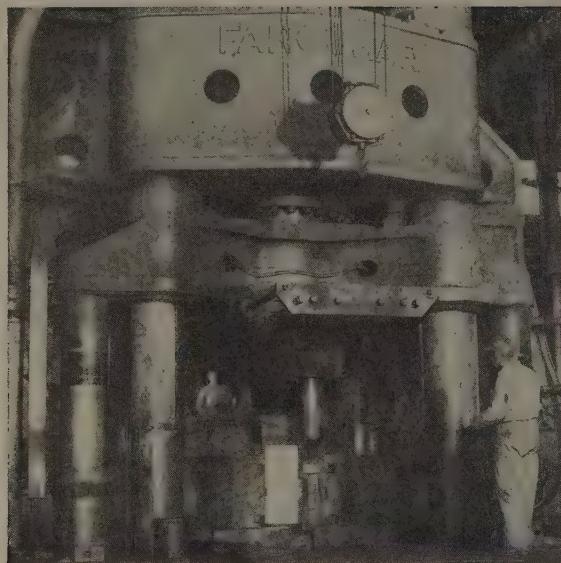
tors found that important variables such as acidity and water ratio effectively influence the formation of dithionate in leaching manganese ores with sulphur dioxide. Properly controlling the ore and sulphur feed rates should make it possible to increase or decrease dithionate salt formation.

PROGRESS IN COATINGS—A review of design and fabrication data shows that some of the coating applications considered impossible just a short time ago are now becoming routine operations. There are certain rules to follow in metal preparation and in product design, but by and large the enamel experts can whip most of the problems they encounter. Some engineers claim that the best piece for coating is a half dome made of enameling iron that has a 4-foot diameter. For some unknown reason, a coating sprayed on a curved surface presents a smoother appearance than that on a flat surface. Keep away from sharp corners wherever possible. p. 72

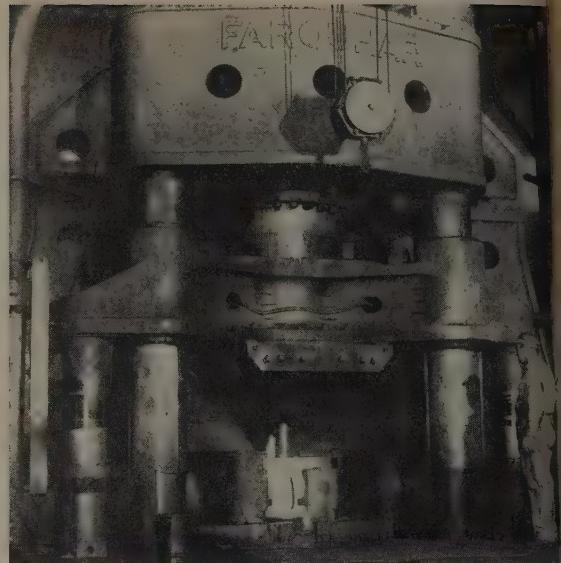
SHOOTING DEMONSTRATION—Companies providing safety devices for employees, especially safety goggles, find effectiveness of the program is diminished by an unwillingness to take advantage of valuable yet free protection. It's at least partly due to the sales job that hasn't been done. General Electric Co. developed a demonstration method that is making believers of heretofore reluctant employees in their turbine plant. A gun is rigged in a demonstration device to shoot steel balls at a pair of eye-glass lenses. The ball bounces off the safety glass but shatters the ordinary lens. Since the demonstration safety men have experienced a rush of business from previously reluctant workers.

OUT OF THE MIST—When an oil-mist lubrication system was installed on a tinning line the old problem of contaminated solution disappeared. Biggest reason is the absence of over-lubricating element. Substantial reductions also came in maintenance. Nine months after the first line was set up on the new system, another line was converted. In that nine-month period, the first line had no bearing failures. p. 80

SMALLER SHOPS SHARE—Rapid tax write-offs are possible for smaller manufacturers to cover much of the cost of converting facilities to processes requiring less tin in the manufacture of cans. Small Defense Plants Administration announces that 13 per cent of the \$31 million in capital authorized as eligible for rapid tax amortization under the conversion program will be set aside for plants employing less than 1000. Authorizations granted thus far cover only a small portion of the amount included in the entire program.



Manipulator set heated billet in working position while the horizontal rams are retracted and split die is opened



Billet is blocked down to desired height for final forging by blocking ram located immediately behind punch

Two Way Press

→ PRODUCE

Main vertical ram has 5000-ton capacity and two horizontal rams are rated at 2000 tons. Techniques developed broaden field of shapes and patterns possible

PERFECTING a new method for producing heavy press-forged parts enables Cameron Iron Works Inc., Houston, to produce equipment capable of withstanding extremely high pressures. Company's main products are blowout preventers, valves and Christmas tree manifolds for controlling the gas pressures encountered while drilling and after an oil well is brought into production.

Advent of deeper and deeper drilling in search of new oil and gas reserves, encounters increased pressures in proportion to the greater drilling depths. Drilling and completion control manifolds made by Cameron must be of the highest quality to withstand the higher pressures. Each assembly is given a hydrostatic test, as high as 15,000 psi, as the final manufacturing step.

Formerly the company used steel

castings for most of the components and experienced considerable difficulty.

During the machining operations, sand holes or other imperfections were frequently encountered necessitating welding and remachining. Such defects would sometimes be detected only after the finished product was subjected to the routine hydrostatic test. Occasionally these units were considered beyond repair and had to be scrapped. Lost machining and testing time on imperfect castings could and did run into a substantial expense.

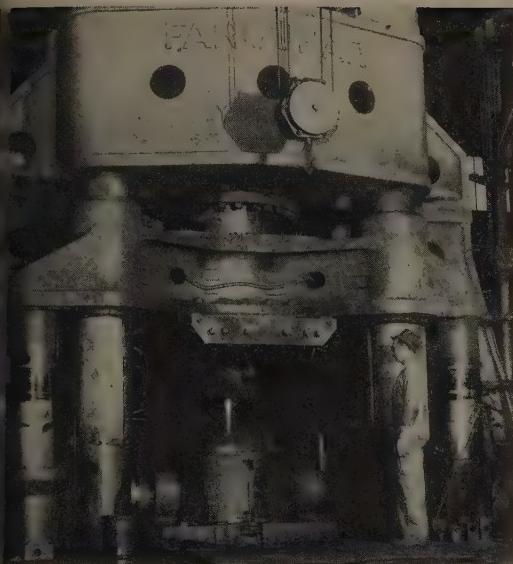
Hunt Better Way — Difficulty with steel castings caused an investigation to be launched for determining whether steel forgings could be produced to accommodate the designs of established products. Forgings were considered since they offer some metallurgical ad-

vantages and usually reduce the manufacturing cost of finished products.

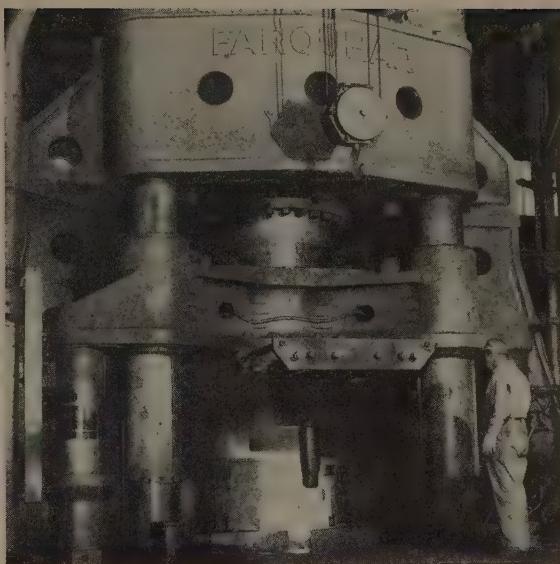
Closed-die press forgings from nonferrous metals and alloys were being produced successfully, and were some relatively small and simple designs of steel. However, equipment that would press-forged 2000-pound well heads and other large products of intricate shape was nonexistent.

New Idea—After a period of research to determine the feasibility of expanding the established limits of conventional press forging practice, the company decided to build a forge press for split die forgings as well as the conventional down-acting rams.

Although a large forge press of this design to handle heavy steel forgings had never been built, the method appeared practical and the



rams are extended to close die around the billet holding it in place and piercing punch enters work



Side rams with die retracted and piercing punch raised out of the bore of finished tubing head spool forging

GH PRESSURE PARTS

A.B. Farquhar Co. was commissioned to build it. The press has a capacity of 5000 tons on the main vertical ram and 2000-ton side, or horizontal, 2000-ton side. For most forgings the side rams hold the split dies together while the vertical ram displaces metal into the cavities of the die pierces. For some forgings the side rams may be used to force or displace metal while the die is held closed by the main horizontal ram.

Moving Metal — A section through a double flanged well head spool-forged in a split die is illustrated. Utilizing the vertical ram to forge and pierce the billet, the metal displaced by the punch flows to the flanges and outlet bosses on each side of the well head. The wafer of metal ahead of the neck is sheared or cut out with a notch as is the flash along the outside where the dies are split. Forgings of this type are made in various sizes up to approximately 1900 pounds individual weight, usually AISI-4132 steel. They have also

been successfully produced from type 410 stainless.

Also shown is a section through a ram-type tubing head body. In this case the vertical ram is utilized to hold the split die together while the side rams do the forging. The steel displaced by punches carried by the side rams flows to fill the die and shape the part.

Fancy Figures — Another intricate shape produced by this method is a valve body of the general contour illustrated. In what is one of the most drastic forging processes in use today, this body is produced in a single operation from a round billet of the approximate diameter of the bonnet flange. The metal extrudes through the neck opening between the body and the flange, and out to fill the flange cavity.

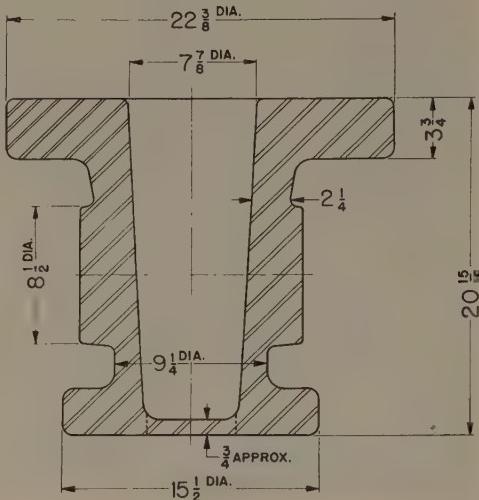
The methods of press-forging developed by Cameron approach the broad field of intricate shapes and patterns that has been limited heretofore to steel castings.

Principal design considerations for the closed-die process of forg-

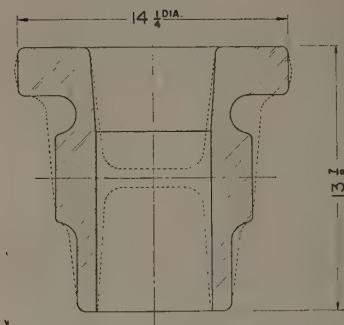


Set of split dies and piercing punch for a casing head spool illustrate the size and type of work handled in Cameron's press forging installation

ing are proper displacement of hot metal being forged in the die and extraction of the finished forging. The chief limitation is size. The amount of pressure required in any particular press forging operation varies with depth of cavity, thickness of parts and analysis of the steel, and varies from 5 to 35 tons per square inch. Therefore, the size of the product is limited by the projected area.



Double flanged well head



Solid lines show press forging, dotted lines same part if drop forged

Attractive Savings—There are a number of advantages of the Cameron forging process as compared with conventional methods of forging and casting, lower manufacturing cost being one of the most important. Average cost of press-forgings in the rough is less than the cost of steel castings because of a much lower labor content. Actual prices vary from less than the cost of castings in simple shapes and cheap dies, to comparable costs in more intricate shapes and more expensive dies.

During the period since the company has press-forged its well heads, valve bodies and other products, the loss of machine work due to bad forgings is practically nil. In a comparable period before press-forgings were available, the loss in manufacturing time resulting from bad castings was a large item in the cost of the finished products.

Forged to Shape—Press-forgings produced in split dies need practically no draft and there is little or no flashing to be removed from the rough forging. Conventionally forged members necessitate a certain amount of draft requiring additional machining time to remove in order to shape the

product to the desired design of the finished part.

An accompanying illustration contrasts a press-forged casing head (solid lines) with the same design (dotted lines) produced on a large drop hammer. Note amount of draft which must be removed and the additional metal which must be taken from between the bosses and the flange on the hammer forging, both of which cost machining time and loss of steel. On the other hand, the press-forged member comes from the die with no excess stock except that allowed for finish on the surfaces requiring machining.

Another interesting item in connection with the relative manufacturing cost of press-forged versus cast steel products is the saving in cutting tools, such as thread chasers. Prior to the time when Cameron switched from castings to press-forgings for the bulk of its products, the machine shop wore out, or broke, an average of 14 sets of chasers for large casing sizes monthly. Not more than two sets of chasers are now required per month.

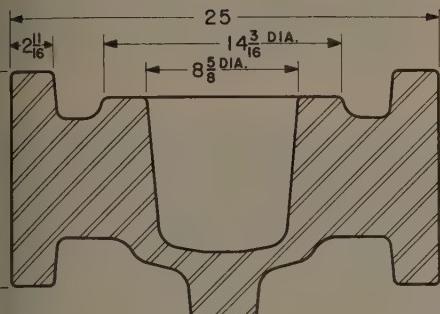
Favorable Facts—From a metallurgical standpoint, the differences between good forgings and good

castings are small. The primary difference lies in the fact that with forgings the grain flow can be controlled to give the optimum pattern in the finished product, whereas this is not possible even with the best of castings.

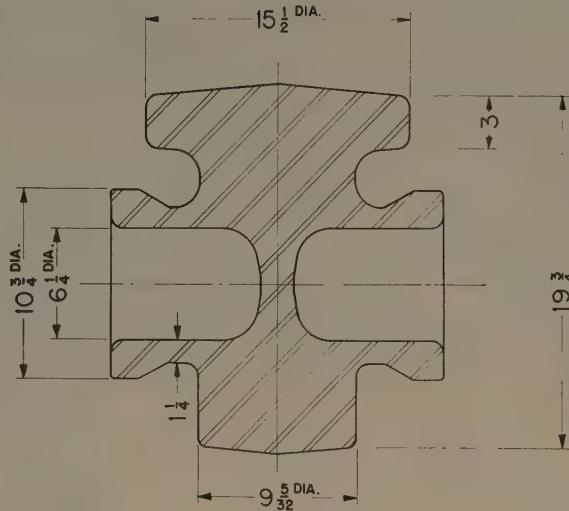
From the practical standpoint the chief difference resides in the fact that good forgings are relatively easy to produce with the proper equipment, whereas good castings are relatively difficult to produce. This means that with forgings which have been subjected to ordinary inspection and pressure testing techniques the probability of an inferior product reaching the ultimate user is quite small.

However, ordinary inspection and pressure testing methods cannot be thoroughly relied upon when dealing with castings and unless 100 per cent x-ray examination and other expensive methods are adhered to the probability of inferior castings reaching service is relatively greater.

Alloy Saver—Another advantage of press-forgings over steel castings is that the desired properties can be obtained with minimum amounts of critical alloy. Take the example of a product



Intricate shaped valve body

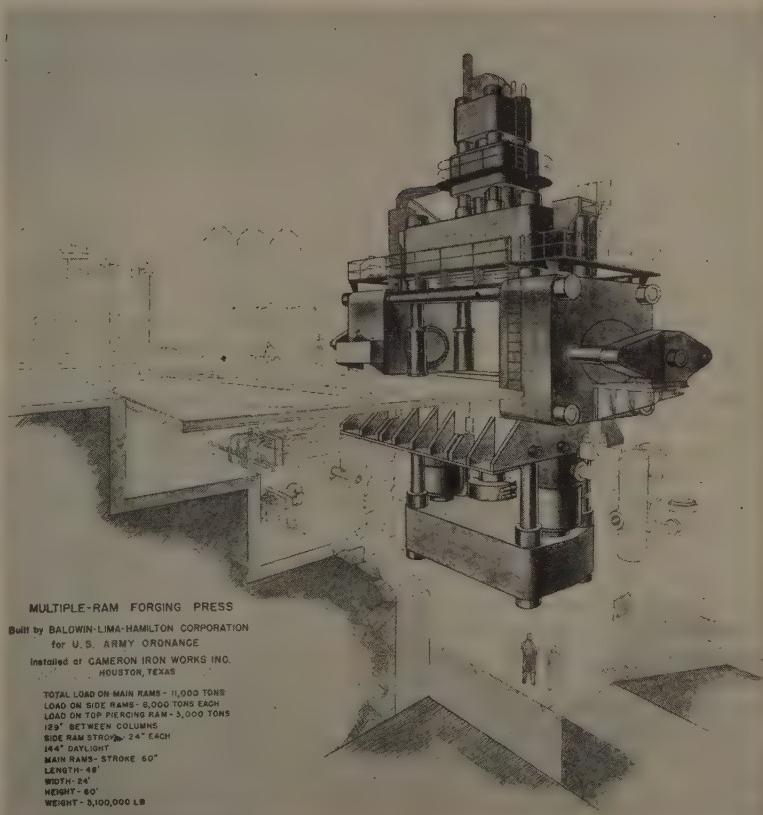


Ram-type tubing head body

ing high impact strength at temperature, along with a high tensile strength. To meet these requirements these products in cast iron required 3½ to 4 per cent nickel. The use of only 1.75 per cent nickel in the press-forging stock produced results exceeding minimum specifications by a more comfortable margin than castings containing a higher nickel content.

Application of Cameron forging techniques to ordnance and aircraft components produced such savings that an increase in facilities to include a new and larger press is being made jointly by the company and the government. The new press will be rated 11,000 tons capacity on the vertical ram and 6000 tons on each of the side rams. Baldwin-Lima-Hamilton Corp. will build the giant press that will greatly extend the possible work range.

Main vertical ram is to be equipped with an inner ram so that billet may be pierced vertically as well as horizontally while the main ram holds the split die position. Higher capacity of the new press will greatly expand the range of products which can be produced by this process.

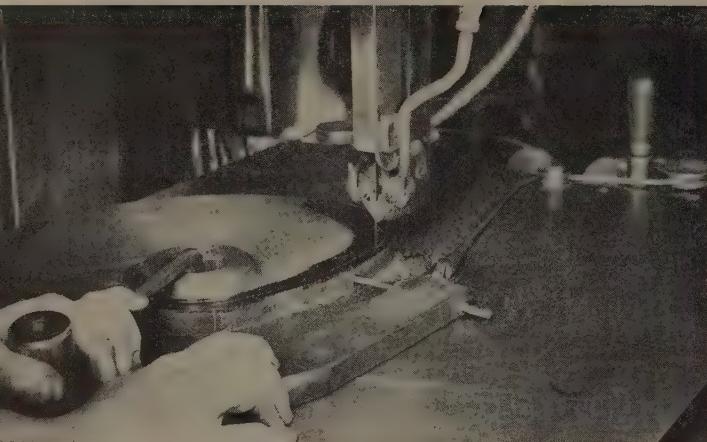


MULTIPLE-RAM FORGING PRESS
Built by BALDWIN-LIMA-HAMILTON CORPORATION
for U.S. ARMY ORDNANCE
Installed at CAMERON IRON WORKS INC.
HOUSTON, TEXAS

TOTAL LOAD ON MAIN RAMS - 11,000 TONS
LOAD ON SIDE RAMS - 6,000 TONS EACH
LOAD ON TOP PIERCING RAM - 3,000 TONS
12' 8" BETWEEN COLUMNS
SIDE RAM STROKE - 24" EACH
MAIN RAM STROKE - 14" EACH
MAIN RAMS - STROKE 60"
LENGTH - 48'
WIDTH - 24'
HEIGHT - 60'
WEIGHT - 5,100,000 LB

Drawing of larger press that will be installed to more than double capacity for large ferrous forgings. Total load on main rams will be 11,000 tons

Cam Curve



Bandsaw cam cutting at Frank L. Wells Co., Kenosha, Wis. As the operator guides it the workpiece is power-fed into the blade

YOU DON'T need to farm out all your cam jobs. Many shops are making their own cams, even when their demand is not great enough to allow for special cam machinery.

Naturally as demand for larger quantities and/or for more complicated forms increases you can more easily justify the installation of special purpose cam-generating machines.

The Hero—Strong man of the field is the contour-cutting bandsaw. It's the same machine that does 101 other jobs around the shop. It's the machine that's used probably more than any other in the production of cams.

The layout line is traced on the metal and the operator then guides the line past the saw blade. With some good magnifying device to help the operator hit the line, tolerances of 0.003 to 0.004-inch are not uncommon. This method will do wonders for you especially when you're working in small lots.

On the Mill — Many peripheral cams incorporate one or more lobes of uniform rise. These lobes may be readily generated on a standard horizontal milling machine if the machine is equipped with a milling attachment which can be set with its cutter-carrying spindle at any selected angle between vertical and horizontal.

The spiral index head in this case is used to hold and revolve the cam being milled. The cutter axis and the axis of the universal spiral index head are parallel. With this setup, the side of the milling

cutter engages the periphery of the cam lobe and the milling machine table travels the cam at the same time it is being revolved, a uniform rise will be generated on the lobe.

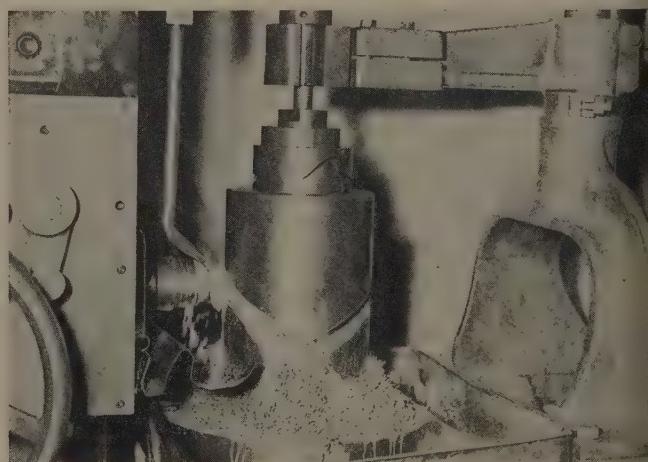
Figures—With a constant speed of table travel, as the operating angle is changed the value of the lead or rise in the cam lobe will change. If the spindle settings are both vertical the lead or rise in the cam lobe will be the lead for which the machine table is geared. If the spindle settings were horizontal, there would be no lead or rise. Between these settings there is an infinite number of settings.

You don't need to operate on a trial and error basis to determine what angle to use to generate a particular rise. The distance the

Using standard machines, some them with special attachments, special machines, you can whip bugaboo of contoured cam surfaces. Here are some of the ways to do it.

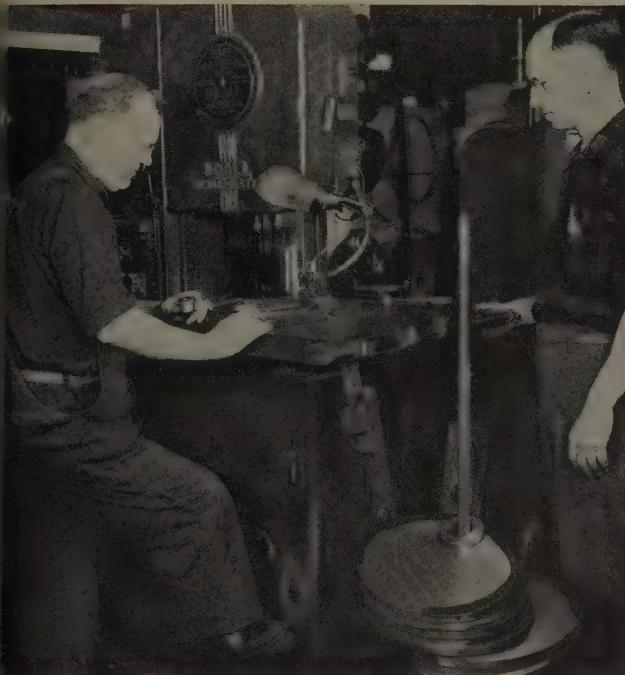
machine table travels while the index head is giving the cam exactly one turn is called the spiral lead. Multiply this figure by the fractional part of the circumference over which it is desired to generate the required rise. Then divide the actual desired rise by this product. The result is the sine of the angle to be employed.

Tables — In many cases where cam milling is done the calculation is not necessary. Some milling machine manufacturers have developed and compiled cam-milling tables. These tables relate directly to their various standard change gears in reference to cam lead, rises, as each such rise would appear if it were produced over a complete 360-degree periphery of the cam.



Overhanging arm supports the workpiece and holds it true during the cycle of this cam milling machine. Once set up, cycle is automatic.

aren't Tough



cut cams on the bandsaw the operator simply follows the out line which has been previously scribed on the workpiece

Reduced Error—When highly accurate gears are desired, one of the best ways to produce them is on a pantograph-type profiling machine. A reason for success here is the copy plate or pattern several times over. Any error in accuracy which exists in the pattern will be reduced in the final cam in proportion to difference in size between the cam and the pattern. This method of producing small peripheral cams is recommended for use on experimental work where the high accuracy is essential.

Shapers—Gear shapers, having the advantage of a short stroke, are particularly useful for production of special cluster cams, mounted on integral sleeves. The cutter spindle on the standard gear shaper is mounted on a saddle. This saddle can be made to approach the

work spindle, or to be withdrawn from it, progressively, during the cutting of the cam. In most cases both cutter spindle and work spindle are rotating as machining proceeds.

Production of peripheral cam contours at the gear shaper is essentially a generating process. Different methods can be and are used for producing peripheral cams at these machines. One method involves the use of a conjugate cutter.

Revolution—This cutter is designed and made with such a peripheral contour that when it is revolved in proper relationship to the cam being machined, it will automatically produce the required profile. During this time the axial lines of the work spindle and the cutter spindle remain a constant distance apart.

Thus where a conjugate cutter is used there is no movement of the gear shaper saddle that carries the cutter spindle while cutting is in process.

On Schedule—Where a conjugate cutter is used, it must either be arranged to rotate precisely once while the cam being machined makes one precise revolution, or the cutter must rotate a given number of times. A conjugate cutter rotating a given number of times while the work makes exactly one revolution is sometimes employed where the same rises and contours repeat on the periphery of a single cam. Valve-operating cams are an example of this.

Another good job for the gear shaper is the machining of cams which are an integral part of the camshaft. In this case the shaft is first machined on a lathe. Then the unfinished diameters of the peripheral cams are contoured on the shaper. Two or more members on the same shaft can be properly profiled using different cam profiles or the same contour can be produced at different locations radically.

Feed Cam—Also a special feed cam, mounted on the shaper, advances the cutter spindle progressively so an ordinary cutter will generate the required cam.

Generation of internal cams at the gear shaper is practical. Either conjugate cutters or a special feed cam may be used in the production of internal cams.

Where cams having a large throw are to be machined, a "false" center of rotation may be used. That is, the cam may be rotated about an axis which is close to the center of the cam area.

Cam Mill—The cam milling machine is essentially a carrier for two co-ordinated moving members. The first of these is the cutter spindle and the other is the work-holding head. These can be made to function in conjunction according to any pre-established pattern within the capacity of the machine.

To meet different work requirements, the workhead may be turned through an angle of 90 degrees. When peripheral or face cams are being milled it is set horizontal. It is turned to vertical whenever cylinder or other similar cams are to be milled.

PORCELAIN COATINGS:

Ingenuity I



Typical of jet engine parts that are coated with porcelain enamel is the tail cone liner shown here. High resistance to heat and corrosive conditions is reported



Interior coating of this deep-well pump housing is one of the new heavy industrial uses of porcelain enamel

Review of design and fabrication data shows that some of the "impossible" coating applications of the past are becoming routine operations. Equipment size is growing

SHORTAGE of high alloy steels has focused attention on the use of porcelain enamel coatings on the more abundant base metals. This growing trend has been implemented by improvements in both the techniques and the coatings themselves, but certain important factors must be considered in order to gain the best possible results.

Of the hundreds of different coatings, there are, in general, only two groups of porcelain enamels and ceramic coatings: The regular, which are suitable for use only under normal atmospheric conditions and can thus be used with solutions that are normally free from strong acids and alkalis; and,

the acid resistant, which are resistant to most acids except hydrofluoric.

Plenty of Color—Colors in these coatings are unlimited with the exception of gold or silver metallic finishes. While porcelain enamel is most often thought of as white, the wide range of colors now available is worth considering. This is particularly true in an industrial part that needs a special color for quick identification.

In designing for a porcelain enamel coating, it is often a relatively minor detail that precludes successful use of the material. An improper weld may be the sole cause that will prevent coating. If

the major design is faulty, a good deal of money and time goes down the drain.

Investigate the Economics—There is a vast difference between a small, light gage decorative part and a heavy stainless steel high temperature industrial part. One might be made on a production basis; the other is a special piece that may never again be duplicated. When the problem involves the latter type, it is wise to consider that nursing may be necessary to bring about successful completion of the project.

Selection of the base metal often determines the cost of the finished piece. The best base metal is enameled

The Progress Factor

By W. A. BARROWS

President

Barrows Porcelain Enamel Co.
Cincinnati

ing iron. Along with it, cold rolled steel is also good. Stainless type steels with or without nickel content can also be coated. **Nix on Nonferrous**—In certain cases, aluminum can be coated but, as a rule of thumb, nonferrous metals should not be used. Galvanized or zinc coated metals cannot be used since they preclude enameling. The thickness of the base may determine the base metal.

This brings out another cost as well as design factor. In the enameling process, the metal must be cleaned for good adherence of the coating. Two methods are used—sandblasting (sand prepared to grit) and a pickle bath. Sandblasting is more expensive but the only method for cleaning cast iron or stainless steel and certain complicated cold rolled steel assemblies.

Ideal Design—Seeking an ideal design, some engineers have said at the best piece for coating is half dome made of enameling iron that has a 4-foot diameter. This indicates several important points.

First, a dome can be sprayed more easily with the liquid enamel slip. The enameling iron provides good adherence for the slip. Secondly, the curved metal offers better strength than a flat piece. A large radius bend will give a better base surface for the coating than a sharp bend.

Smoother Surface—For some unexplained reason, a coating sprayed on a curved surface presents a smoother appearance than that on a flat surface. An orange peel effect is often noticed on a flat surface which, while not important

to the protective characteristics of porcelain enamel, makes the coating appear slightly textured.

A single, self-contained piece offers the best surface for coating. If welds are necessary, the ideal is a smooth, gas-free type of the same base metal.

Plant Limits Size—The 4-foot diameter points up the fact that the size of a piece is necessarily limited by the equipment available in a porcelain plant. Our particular limits happen to be a 10-foot length, 4½-foot width, and a 6-foot height. These limits refer to the furnaces where the enamel is fired on the base metal. Some special furnaces have been designed to coat entire tank cars at one time.

Farm silos are coated with porcelain enamel in furnaces which permit firing in sections. We designed and built a special furnace to coat 21-foot lengths of pipe needed for a particular application. At the other extreme in size, small laboratory pieces have been coated. In one piece, the diameter was so small the liquid slip had to be applied with an eyedropper.

A Few Precautions—Coatings cannot be applied over brass, brass welds, or bronze due to lack of adherence. They cannot be applied over soldering, silver soldering, or parts that are expected to move like hinges or pins.

Riveted pieces can be coated only under limited ideal conditions. A light gage flat piece with a heavy welded stiffening angle cannot be satisfactorily coated because of unequal expansion and contraction that occurs in the fusing operation.



Coated combustion chambers of jet engines can take the extreme thermal variations from 1800° F to -60° F

Watch the Welds—Welds should be watched closely. Gas or electric welds are satisfactory. In lighter gage assemblies, spot welding is often used for attachment of clips or lugs. Such lugs or clips should preferably be of lighter gage than the base metal. Should two pieces be joined by spot welding, the spots should be very closely spaced, simulating a seam weld. Seam welding is very satisfactory in joining pieces to be enameled.

Where a piece includes threads, the threads are not coated since porcelain enamel would destroy the thread action. The coating can be



This grease trap is coated with black glass porcelain enamel. Use of strong cleaning solvents will not affect it

applied to the remainder of the piece with accurate control.

Varying Thicknesses OK—These limitations do not mean that joined pieces of varying thicknesses cannot be coated. In one instance, a conveyor screw varying in thickness from 2 inches on the cylindrical base to $\frac{1}{2}$ -inch on the fins was successfully coated. The welds were smooth so the coating could be applied uniformly. In such a case, three or four pre-heatings may be necessary before the final firing.

Heat to about 1500°F must thoroughly penetrate each section to insure adherence of the coating. The additional pre-heatings equalize the heat in all sections. Extreme variations in thickness should not be used because of this time-temperature factor.

Coating Tolerances—These can be held to strict limitations. If necessary, tolerances of a few thousandths of an inch can be held. Ordinary coatings run from 0.005 to 0.030-inch. High temperature coatings on stainless steel are generally applied at thicknesses of 0.001 to 0.0015-inch.

The question of mechanical shock on the coating often arises. The mechanical impact which various porcelain enamel and ceramic coatings can withstand is extremely high and it can be stated as a rule of thumb that the coatings

will adhere up to the yield point of the metal.

Good for Thermal Shock—Where thermal shock will affect the piece, porcelain enamel can be extremely useful. This particular field has been sparked by the nation's jet engine program and steady improvements are being made. It has been proved that coated pieces can be used where thermal shock is as great as 1800°F to -60°F in a matter of seconds.

Reviewing the overall field, it is difficult to say where limitations are imposed on parts that can be coated. Base metals can be charged and more desirable methods of joining employed. The ingenuity of the porcelain enamel applicator can often overcome a situation thought to be impossible. In essence, the size of the enameling equipment is the only true limiting factor in the rapidly increasing applications of these coatings.

Socket Screw Calculating Eased

To help engineers, specifiers and others to quickly select correct sizes of socket screws, Standard Pressed Steel Co., Jenkintown, Pa., has brought out a new, easy-vision screw calculator.

With it, all dimensions can be obtained quickly for a standard screw of given diameter. Threads per inch and the proper tap drill size in the National Coarse and

the National Fine series, and the body drill and counter-bore sizes are given for each diameter. Calculators are available free to encourage manufacturers to use standard rather than special fasteners, according to company officials.

Automation Boosts Output

It does not replace the worker ASME is told, just multiplies his unit productivity

AUTOMATIC control of factory operations does not replace workers, but rather multiplies each worker's output, George M. Muschamp, vice-president of engineering for Industrial Division, Minneapolis-Honeywell Regulator Co. told the annual meeting of American Society of Mechanical Engineers in New York.

Citing the example of a modern high-speed rolling mill turning out strip steel at 5000 fpm, he calculated that it would take 50,000 blacksmiths to attain a like production with hammers.

More System Planning—Turning to the positive aspects of automation, Mr. Muschamp told his audience that they must increasingly engineer whole systems of operating factory processes before a machine is even put in place, instead of simply attaching controls to machines hitherto operated by manual direction.

"In some industries the era is passing in which the process is designed independently of control means, and the controls added later as something of an afterthought. More advanced thinking embodies the idea of collectively working out the overall process problems including the control considerations taking advantage of the latest techniques and equipment in all branches," he said.

Costs Critical — Mr. Muschamp cited as stumbling blocks, management and manufacturer inertia, cost differences which might rule out the mechanically most efficient process as extravagant, and reluctance of management to spend on engineering alone. Lumping the engineering fee for automation service into the equipment manufacturers' price, he said, had gone about as far as it could.



This is not our standard performance, but . . .

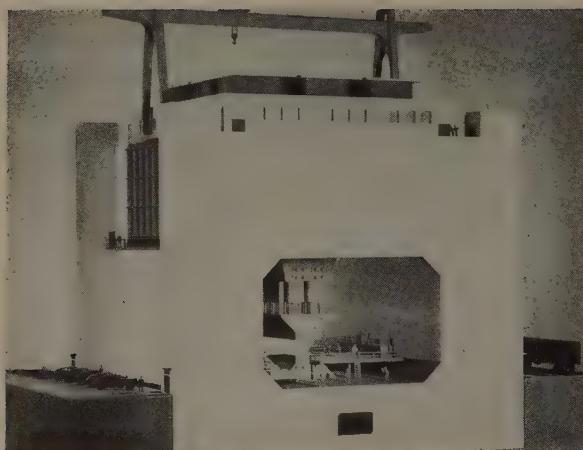
. . . it does happen, every once in awhile, that something like magic has to be conjured up, on a sudden problem involving some special service to a customer.

And this is when a compact, fast-moving, red-apé-cutting organization like Bristol Brass shows up at its best. Because here there are no handicaps of ponderous size, outworn traditions or hide-bound business procedures. Here, imagination and initiative are the pass keys to all problems that come up. Not that magic is Bristol's stock in trade — *it isn't*.

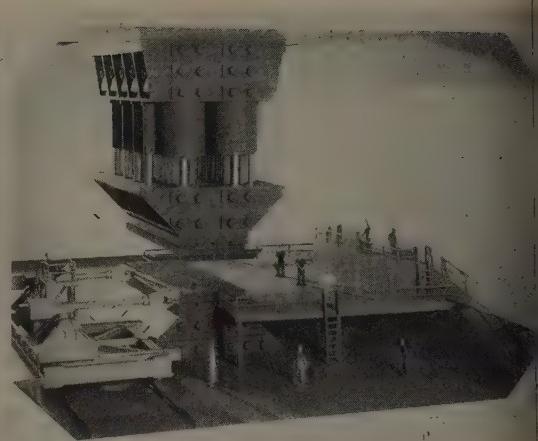
But it's there, when the chips are down, for any buyer of Bristol Brass sheet, rod or wire who finds himself in a jam, with time running out. Against such a time, note down this phone number — Bristol 9246.

The BRISTOL BRASS CORPORATION, makers of Brass since 1850 in Bristol, Conn. Offices or warehouses in Boston, Chicago, Cleveland, Dayton, Detroit, Los Angeles, Milwaukee, New York, Philadelphia, Pittsburgh, Providence, Rochester.

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Gantry crane on top of building has 100-ton capacity and handles power plant equipment and 90-ton accumulator bottles located on side to minimize run of piping



Closeup of working area for 75,000-ton model showing 360-degree access for placing and removing dies or work of any size. Manipulator holds large workpiece.

Throatless Design Raises Press Ceilings

DEPARTING from the conventional design of large forging presses, a new throatless construction permitting 360 degree access to the dies raises the ceilings of possible press sizes. In the current heavy press program sponsored by the Air Force two 50,000 ton presses are being built and engineering work is being done on a 75,000 ton unit. The latter size isn't considered practical at the present time and is regarded as the biggest possible by some of the program planners.

Engineering work completed to date by Austin Co., Cleveland, and Hydraulic Press Mfg. Co., Mt. Gilead, O., indicates their design is practical for press capacities ranging from 20,000 to 100,000 tons or more. The two principals jointly formed Throatless Press Co. having complete responsibility for all future negotiations, development, designs, manufacturing and construction.

Started Here—Idea for the press design originated with C. A. Van Dusen, Van Dusen Engineering Co. and a former aircraft industry executive. HPM and Austin, to whom Mr. Van Dusen assigned his rights, converted the idea into an engineering project that now offers a practical solution to the many design problems for heavy presses.

Basic idea for the press structure is a rather simple one. The

mass of concrete above the press must be equal to or greater than the force exerted by the press. Austin's wide experience with prestressed concrete construction ties in neatly with HPM's experience as a builder of large hydraulic presses in the structure's design. As shown in the illustrations, no vertical press columns are needed except the concrete walls 80 feet apart.

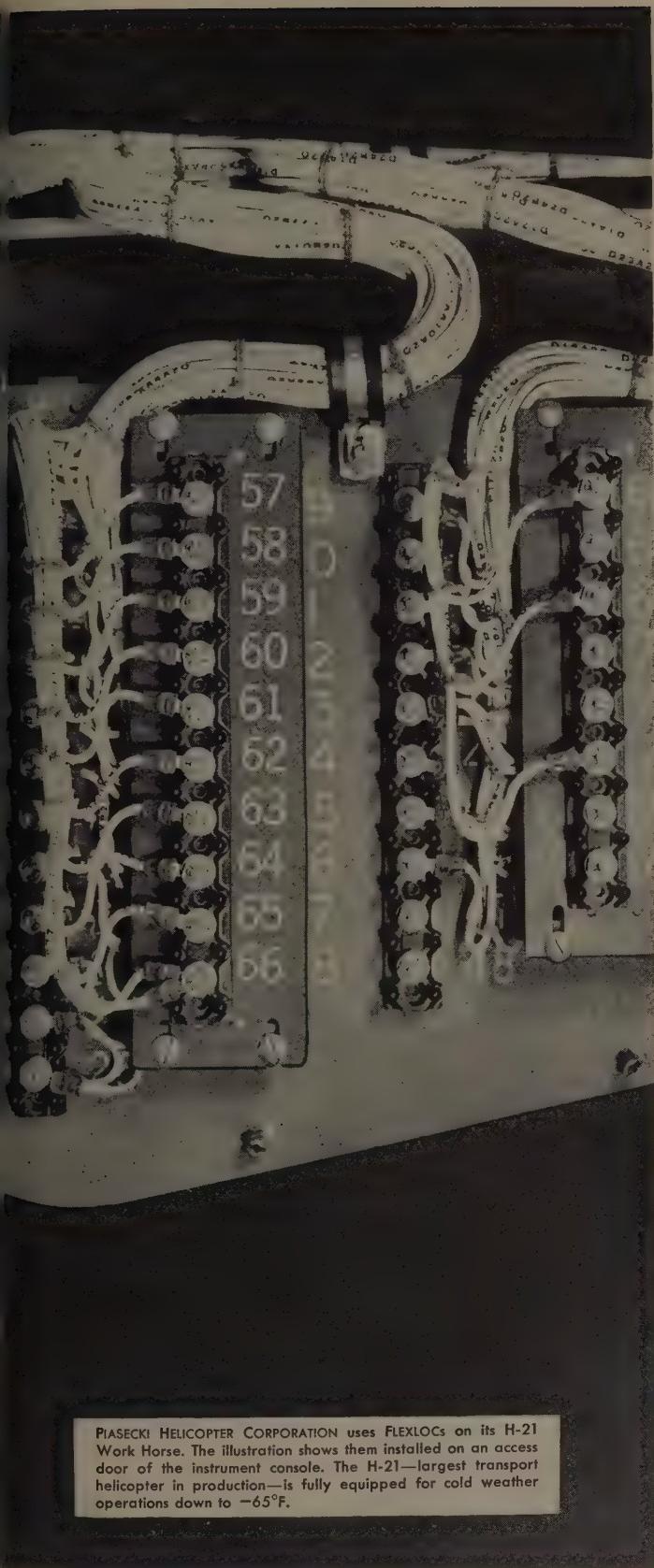
Size Is Flexible—While actual dimensions of the concrete mass placed around the 75,000 ton forging press are not announced pending final studies, the model indicates a structure with an over-all height of 180 feet with 30 feet below the ground level press room. Depth of the excavation is not a constant but would depend on bearing ability of the site. With a rock foundation, for instance, the amount of excavation could be reduced to a bare minimum. Length of the initial press room is scaled at 120 feet but unitized design would readily permit lengthening of the room itself, extending bed dimensions, adding press sections to increase tonnage or pressing area capacity, or installing a line of smaller presses in a single frame.

Construction of both the building and size of actual press components do not impose limitations on the press location. Availability of concrete and the readiness with

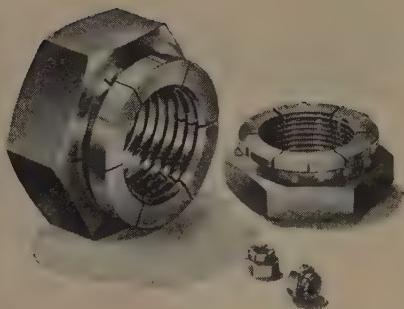
which it can be transported to a location solve part of the problem. The press components are generally not much larger than those being regularly made for numerous smaller presses. Special transportation problems requiring either circuitous routing or custom-built equipment are not expected to be a factor.

Easy Entry—Ready access to dies simplifies design of manipulators and die carriage since they can operate from any side. Press area can be of any desired size and shape within the limits of the concrete frame to accommodate work of unusual dimensions. Large openings can be used for jobs like forming sheet metal. The design also allows limited room for perimeter reinforcement of high unit pressure rubber pad holders and simplifies using inert gas chambers for closing dies when forging metals and alloys requiring such treatment.

Cost comparisons are difficult since there isn't any figure available as to the cost of a 75,000 ton forging press of conventional design but Austin and HPM estimate a throatless version of the same capacity would cost about half as much. Another advantage pointed out by the two companies is that the entire press can be made of equipment presently available in metalworking plants.



PIASECKI HELICOPTER CORPORATION uses FLEXLOCS on its H-21 Work Horse. The illustration shows them installed on an access door of the instrument console. The H-21—largest transport helicopter in production—is fully equipped for cold weather operations down to -65°F.



Why use FLEXLOC locknuts?

The answer is simple. They hold assemblies together, and won't work loose like ordinary nuts. Once you install these one piece, all metal nuts, you can forget them. Yet they can be easily removed and can be reused again and again.

No fastening job is too tough for a FLEXLOC. Whether it's on an access door of a Piasecki Helicopter or the picker stick of a high speed loom, a FLEXLOC stays put.

FLEXLOCS save production and maintenance time. They are one piece, all metal—nothing to assemble, come apart, lose or forget. Standard FLEXLOCS have higher tensile than most other nuts—and because they are all metal, are not affected by temperatures to 550°F.

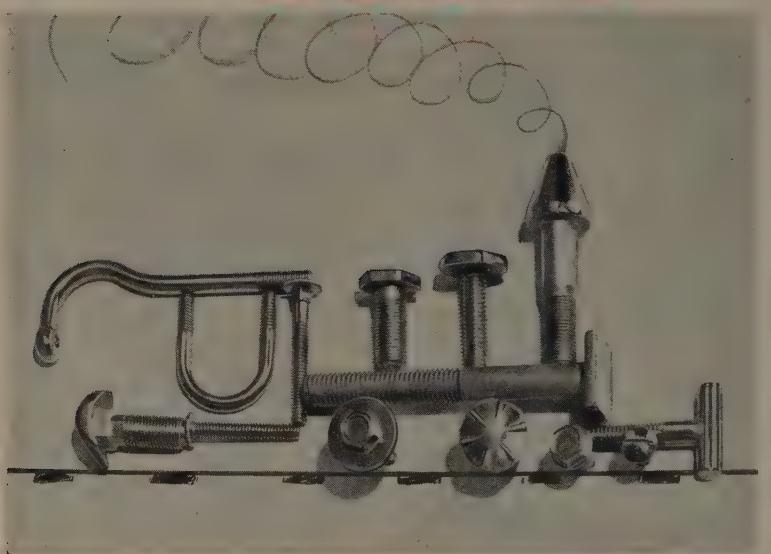
SPS can deliver any quantity of FLEXLOCS in a wide range of sizes. Stocks are carried by industrial distributors. Write for literature and samples. SPS, Jenkintown 33, Pa.

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Machine Bonds Lead-Steel

Hand techniques outmoded by a compact machine which is said to produce perfect bonds.

VERSATILE automatic machine which will produce a perfect chemical bond between lead and steel announced by Knapp Mills Inc., New York. In one day one small machine will clad a steel surface that would require 8 to 10 man-days to cover by hand techniques according to Mr. Alfred P. Knapp, company president.

With this new method, steel is first prepared through leadizing. Then lead of any desired thickness can be applied. The lead will not separate from steel in service unless it is melted off at temperatures close to 621°F, the melting temperature of lead itself.

Pooled Ideas—About a year ago American Viscose Corp. selected Knapp Mills to develop all its patents and patent applications pertaining to lead. The new machine has resulted from pooling the ideas and talents of the latter's staff with members of the American Viscose Corp.'s patent development department.

Such machines will chemically bond a strip of lead up to 12 inches wide by $\frac{1}{4}$ -inch thick to prepare steel. The operator can control width and thickness of the lead cladding by regulating speed of the machine and spreading or narrowing its two cladding heads.

No Lead Carried—An important advance in design over earlier models makes it unnecessary for the machine to carry its own lead supply. A strip of lead is laid down under the machine; the cladding heads melt this lead and chemically bond it to the steel as the machine automatically moves across the plate.

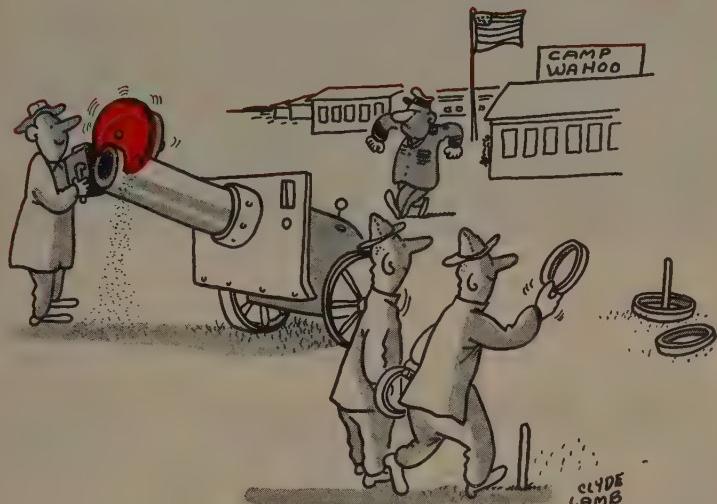
The machine is designed so it may also carry its own lead supply in tubular feeds at the front of the unit. While the machine may run free, directly on the steel, it will also operate on a track, taking off the bottom carriage, reversing it and mounting it on top of the machine, the unit will run on a lightweight aluminum or magnesium beam so it operates in a tank shell as well.

The whole carriage can be turned



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Abrasive Cutting



Automatic Sample System

Two-way pneumatic tube system connects an electric furnace office with the laboratory helps attain quality steel by transmitting samples quickly. Standard Conveyor 4-inch diameter system handles steel cones and slugs that do not exceed 4 pounds. Reports can be handled with equal lack of time lag.

ad lead on either the right or side. The unit weighs less than 15 pounds. Even though the heads direct intense heat to the lead and steel beneath them, the machine itself does not even get warm in operation.

and Tool Too—A hand-operated model has also been designed. The tool may be used to burn to lead, as in welding sheet and pipe. The hand unit, weighing less than 10 pounds, operates without a carriage on a single wheel or tripod arrangement with a grip for the operator's

Others Study Future Research

course of future technical research to be sponsored by the Al-Casting Institute will be decided at the next meeting of the Technical research committee, scheduled for January 14, in Coibus O.

Discussions at the meeting will determine what percentage of the time programs should be concerned with fundamental metallurgical research, and what percentage should be devoted to developments, testing or other topics.

We question the judgment of G. I. Joe, but even the General knows that Allison Wheels cut rings around competition. Fact is, whatever the material or the conditions, there's an Allison Abrasive Wheel that does a more economical and efficient cutting job. Steel, non-ferrous metals, bar stock, tubing . . . whatever it is, Allison Wheels cut cleanly at high speeds.

For complete information on wet or dry cutting, ask Allison . . . specialists in abrasive cutting for 30 years.

An advertisement for Allison Abrasive Cutting Wheels. The top half features a large, stylized cursive script of the word "Allison" next to a red circular graphic. Below the script, the words "ABRASIVE CUTTING WHEELS" are printed in a bold, sans-serif font. The bottom half contains two promotional statements: "THE best WAY TO CUT MANY MATERIALS" and "THE only WAY TO CUT SOME".



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View of top portion of chemical treating section on tinning line at Wheeling Steel. Oil mist unit at left is serving seven separate bearing locations

Oil Mist Tames Tinning Problems

Solution contamination problems in this plant were minimized with oil mist lubrication system. Now they have fewer "menders"—less maintenance

GREASE GUNS retired. That's the story out of the Yorkville, O., plant of Wheeling Steel Corp. where Alemite Oil Mist lubrication is used on conductor rolls of two electrolytic tinning lines. Oil Mist is the trade name for a system which automatically distributes a stream of atomized oil particles directly to the bearings.

Before application of 10 oil mist units to the lines, one with a tinning rate of 680 and the other 1000 fpm, lubrication was applied with hand-guns. Approximately 75 lubrication points had to be greased every 24 hour period. Many of these points could not be reached without stopping the machines, which are scheduled for continuous operation.

Grease Troubles — Accidental overlubrication was the cause of a lot of grief, especially in hot weather. Dripping grease would contaminate the tinning solution.

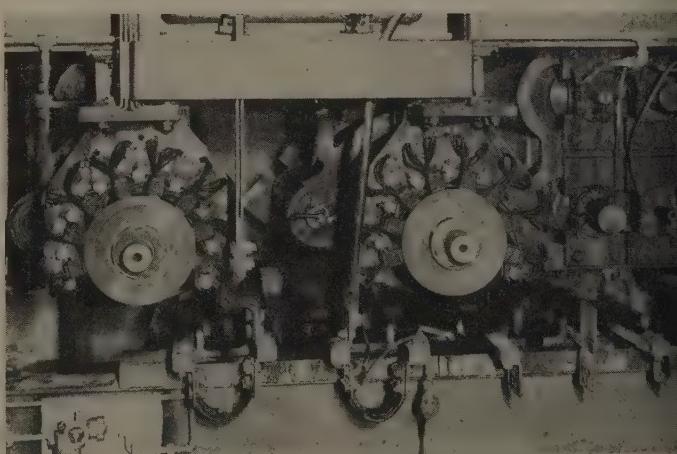
Another troublespot was overgreased idler rolls. Internal friction in bearings too fully packed with grease sometimes slowed them down to the point where the strip was traveling faster than the idler

over which it was passing.

Had Enough — In April, 1951, Wheeling engineers decided they had enough of these greasing problems. Installation of the oil mist system began.

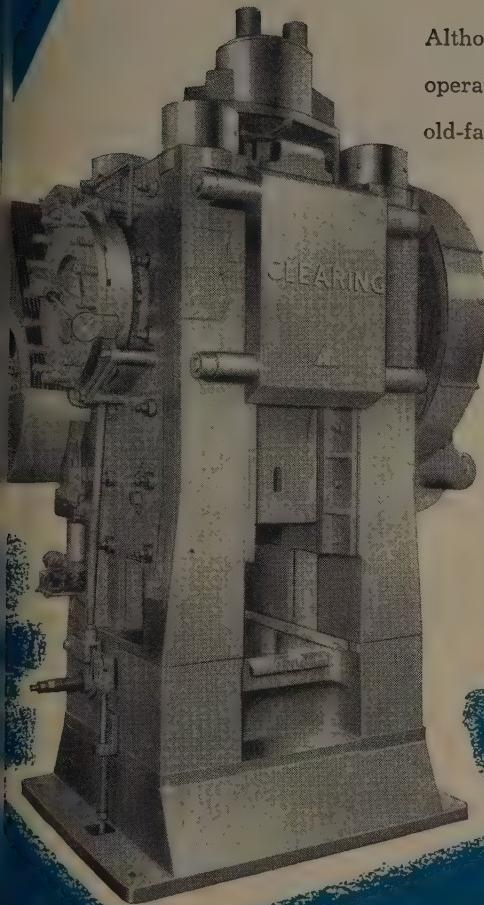
The line selected was the 1000 fpm line. The air line to the machine is a 1 inch ID pipe, putting 80 pounds pressure into a Wilker-

son moisture trap and air filter. The air next goes to the unit itself where it passes through a regulator and gage, then through a venturi where it draws oil from the reservoir. The mixture of air and oil, which can be set to desired richness, is thrust against a baffle and then only the most minute particles are blown into the 1/2-in.



Grease dripping into this tinning tank used to cause contamination troubles. Oil mist has cut this cause of work stoppage completely.

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Although they demand less skill and less manual effort from the operator, Clearing forging presses turn out more pieces per hour than old-fashioned methods. The forgings are uniform in size and weight regardless of the human element.

If you're looking for ways to reduce forging costs or increase production without increasing man-hours, Clearing forging presses are your answer. We'll be glad to supply details without obligation to you.

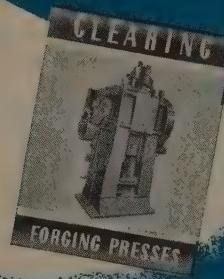
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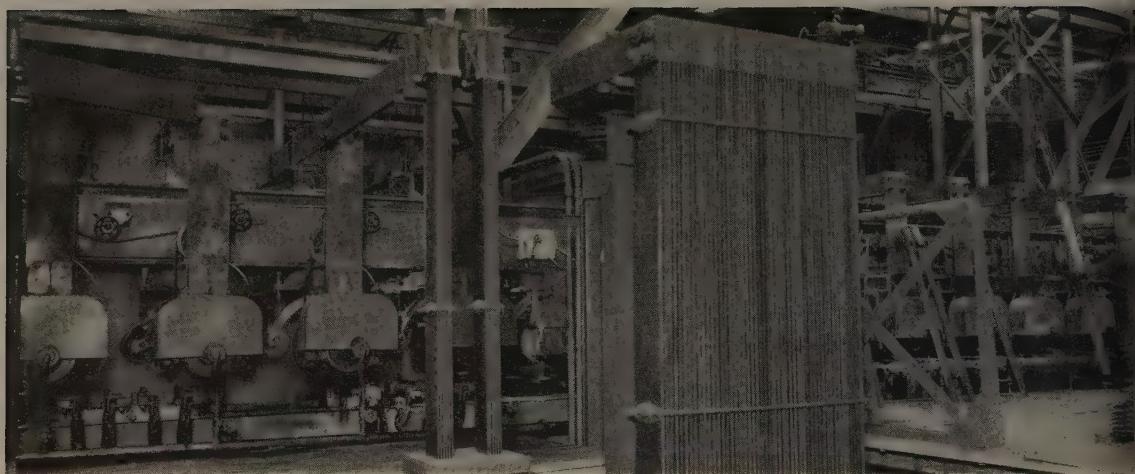
Cut-away illustrations show why Clearing forging presses give long, dependable service on the tough jobs. Ask for your free copy.



CLEARING PRESSES

THE WAY TO EFFICIENT MASS PRODUCTION





Once a trouble spot on the line, there have been no bearing failures in this acid and moisture-laden atmosphere. Surface scratches are almost nil

main delivery line from which it goes into $\frac{1}{4}$ -inch tubes feeding the various bearings. A Davis solenoid activates the system when the machine is turned on.

Easy On Oil—Lubrication is continuous; whenever the line is running, air is going to the 10 units which each serve an average of six 5-inch bearings. Air pressure to each unit is 10 pounds, and average oil consumption is approximately $\frac{1}{8}$ -ounce per hour for the half-dozen bearings served by each unit. Thus oil consumption for both tinning lines is only 30 ounces per 24 hours.

Approximately nine months after the first line was equipped, the 680 fpm line was also set up with oil mist lubrication. In the nine month period there was not a single bearing failure, and there was no single instance of solution contamination.

Licks Acid Trouble—One unit of the tinning process had previously given much trouble before the changeover. This was the chemical treating tower through which the strip passes after leaving the solution. The acid solution used in treating the tinned sheet would attack the EP greases that were applied with a handgun. Using a 750-second lead-naphthalate type EP gear oil, the oil mist system has cut bearing failures in both the bottom and top portions of the tower. This, despite acid and moisture conditions in the bottom, and superheated steam at the top.

Tried In Sweden—One of the

earliest experiences with oil mist in the steel industry dates back to 1942 in the SKF steel works at Höfors, Sweden. Here it was applied to antifriction bearings in a cold rolling mill. D.T.E. extra heavy oil is used and oil consumption is reported at 0.04 cubic centimeter per bearing per hour—a low figure in comparison to the usual amount of lubricant required for roll mill bearings.

Other applications have been successfully made on hot saw bearings, Wheelabrator bearings, spindle bearings on buffing and polishing machines, shake-out bearings, precision rolling mill bearings, etc. and in all cases the oil mist lubrication method has prolonged bearing life, improved production and cut lubrication costs.

How It Works—Underlying principle behind the oil mist system, as pointed out by Alemite engineers, is the delivery of a continuous and uniform amount of oil to all lubrication points connected in the system, neither starving nor flooding any one bearing. For this reason, three separate types of fitting orifices have been designed. Straight mist is used with antifriction bearings, because they have sufficient velocity and mass in motion to, in effect, knock out minute oil particles from the mist stream.

However, plain bearings normally do not have the necessary velocity or mass in motion in direct contact with the mist to knock particles out of the air. For that reason a condensing fitting is used

which converts the mist to fluid. These fittings come in severalifice sizes for different sized bearings.

Sprays Too—The third type bearing connector is the spraying, which by virtue of its desirability, partially condenses the mist into fine spray. This type of lubrication is highly desirable for exposed gears, chains or any other surface requiring a fast oil wetting.

In all three types, field experience has showed that the air fittings aside from being a perfect medium for oil distribution, also perform a cooling function within the bearing.

Quaker Finishes Belt Expansion

Installation of two large conveyor belt presses, one 72-inch and one 60-inch, marks completion of the \$250,000 belt department expansion at Quaker Rubber Co., division of H. K. Porter Co. Inc., Philadelphia.

With addition of these presses, capable of producing conveyor belts as wide as 72 inches, Quaker reports that they can now meet almost any requirement of the industry. Conveyor belts from the new presses are especially adaptable for the handling of hard ores, coal, rock and other bulk materials where maximum width belts handle the products over comparatively long distances.

The 72-inch belt press measures 30 feet by 92 inches and can exert a force up to 3300 tons, while the 60-inch press is 30 feet by 92 inches with a force of 3000 tons.

Storage Idea Saves Space

HERE storage area is at a premium, careful planning can simplify eliminate warehousing dilemmas. It was the case at Cooper-Bessemeyer Corp., Mt. Vernon, O., builder of large diesel engines and gas driven compressors. At this plant, 1500 sq ft of warehouse space that would have been needed to store finished crankshafts has been cut to 300 sq ft, saving 80 percent of the floor area for other potential use.

With Cooper-Bessemer's storage system, crankshafts are simply stacked in a vertical position adjacent to a line of columns and away from the more active center of the main warehouse bay.

Bolted To Floor — Crankshafts are secured by bolting to a flange plate in the floor and tying to a platform with clamps as a safety caution. A lifting clamp is used on the crane hook facilitating lifting and handling. This method of storing the crankshafts eliminates the possibility of the distortion of these precision machined shafts.

Cost reductions with the new storage procedure accrue from time and labor saved in handling the finished parts. Formerly it was necessary to coat the precision ground shafts with heavy grease and store them outdoors. Because of the floor savings, the new storage system enables these units to be brought inside without taking a major share of the warehouse's limited facilities. The crankshafts need only be coated with light oil that can be wiped off prior to assembly into the engine crankcase.

Lightened Selection

In a statement to STEEL, W. C. Lockwood, supervising engineer, Cutting & Grinding Fluids, Texas Co., New York said that recent industry demands for increased production have thrown the spotlight on proper selection of cutting and grinding fluids.

According to Mr. Lockwood the selection of these fluids should be undertaken with the same care given to selection of machines and tools.

Water solutions, emulsions, straight mineral oils or highly



Fork Truck Charging

Dumping scrap and virgin metals into foundry charging bucket pits is a job handled easily by this versatile fork truck. Electro-Alloys Division, American Brake Shoe Co., Elyria, O., uses the 4000-pound Baker truck part-time for dumping material, keeps it busy on receiving and shipping when it isn't working at the charging pits

compounded oils all have properties that will give best results on a particular operation. Intelligent choice of one of these fluids can be the extra shot needed to make the job succeed.

New Trailer Brake Designed

A special hydraulic foot controller for passenger autos used to pull coach trailers has been developed by the Warner Electric Brake & Clutch Co., Beloit, Wis. The automobile-size control uses the same principle as the heavy-duty type that are designed for use in large tractor-trailer combinations.

The controller was developed as a safety feature for the many coach trailer owners who experienced difficulty in co-ordinating the application of both car and trailer brakes; since the auto brakes were applied in the conventional manner and the trailer brakes were applied by use of a hand control.

This special hydraulic foot controller, it was explained, is mounted directly into the car's braking system so that a normal brake action results in a simultaneous application of both the car and the trailer brakes.

METALWASH

A score of custom-built METALWASH machines treat a myriad of ball bearings of different types and sizes every day at the Fafnir Bearing Company plant, New Britain, Conn.

AT FAFNIR

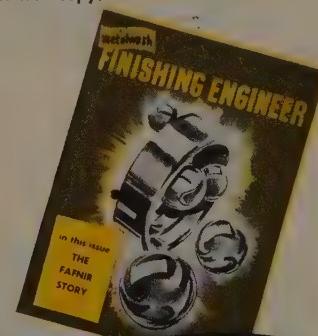
Because the manufacture of precision ball bearings to exacting specifications demands repeated washings, the Fafnir Bearing Company insists on METALWASH.

The rigid control exercised in ball bearing production is dramatized by METALWASH MACHINERY CORPORATION in the January issue of *The Finishing Engineer*.

Read THE FAFNIR STORY for an exciting close-up of precision ball bearing manufacture.

METALWASH *Finishing Engineer*, published quarterly, is available on request to engineers and executives to whom cleaning and finishing are operations of interest.

Write on your company letterhead for your free copy.



METALWASH
MACHINERY CORPORATION

917 North Ave., Elizabeth 4, N. J.
Representatives in principal cities

Compounds Extend Tap Life

SERIES of tapping compounds reported to eliminate problems of tap breakage, low production, use of white lead, poor finish and short tap life is announced by Van Straaten Chemical Co., Chicago.

The series is effective because it has unique polarity characteristics that resist wiping action giving better carry-through. In addition, better wetting ability provides complete penetration to all areas of cutting contact.

Problem was first presented to Van Straaten by a New York manufacturer that was gang tapping armor plate steel. From 10 to 18 holes were being tapped one time with a multiple tapping machine on armor plate castings with a Brinell hardness of 241-293. The taps varied from $\frac{1}{2}$ to 1 inch and ran at speeds from 100 to 57 rpm.

Start With Research—Based on performance of oils that failed, new series of oil compounds were developed. The first was effective but with a viscosity of 1600 seconds at 100°F, it was too heavy for the coolant pump. The second compound, known as Vantrol 55-B, was used because of its viscosity of 400 seconds. It has the same chemical makeup but lower viscosity. The job now runs smoothly. Often tap breakage is as low as one or two a week.

On another job, a Wisconsin plant had tried for 10 years to replace white lead in an operation that used taps up to $2\frac{1}{2}$ inches. Only with white lead could they get an acceptable finish and long life but the white lead was extremely difficult to remove from the parts. Parts were axle housings, steering forks and carriers of SAE 1040 and 6145 steel, Brinell hardness of 179 to 207.

More Tap Life—With the 55-A, heat was reduced and tap life extended. On the larger taps, cost has been raised at least 100 cent, reports the firm. On the $2\frac{1}{2}$ inch tap where the company formerly got six pieces per grind, they now get 75. Finish is excellent. The compound cleans in one minute in an agitated tank wash, the research engineering report declares.

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Iridite is approved under government specifications.

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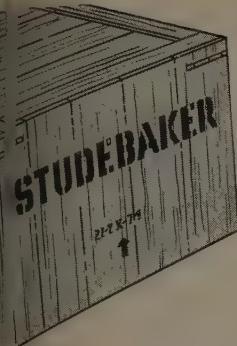
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RUBBER-TIRE LORAIN loads 24 crated cars and trucks daily for export shipment



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work in YOUR plant . . .

One-man operation—work
by hour, any season, with
equal efficiency.

More than 16 lifting attach-
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shape or type material.

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ity — move anywhere, any-
where around your yard —
move materials when and
where you need them.

Wider aisles — more storage
space — stack materials
higher — reach farther with
the long crane boom.

Fronttip air steering — air
brakes — all controls in op-
erator's cab — 4 speeds in
both directions, 1 to 7 m.p.h.

Handling big, bulky boxes for export shipment is no problem at the South Bend, Indiana, Studebaker Plant. Using a mobile Lorain Self-Propelled Crane, Model SP-254, Studebaker keeps a steady flow of crated assemblies, weighing an average of 3-1/2 tons, heading for export destinations every day. 12 crated cars and 12 crated trucks daily are loaded by this fast stepping, versatile Lorain crane. Notice how the Lorain has been fitted with a special 30 ft. gooseneck boom to give clearance to the extra-long boxes, measuring as much as 26-1/2 ft. in length and weighing up to 10,000 lbs. Also, note the special clamp that firmly grips the box for loading. These are but a few of the many ways Lorain cranes can be adapted to *your* material handling.

This is the third time Studebaker has chosen rubber-tire Lorains for their plant. Here's proof of satisfaction . . . not only with Lorain performance, but in the advantages of Lorain rubber-tire mobility on material handling jobs.

To get things on the move, faster, more eco-
nomically . . . to handle your materials
like the biggest, most progressive com-
panies do, investigate the complete
line of Lorain cranes. Your local
Theew-Lorain distributor can give
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Lorain specializes in mobile crane power
for material handling . . . offers crawler
and rubber-tire mountings up to 45 ton
lifting capacity. There is a size to fit your
material handling needs . . . and a right
attachment for any kind of material.

THE
LORAIN®

Furnace Treats 110-ft Pieces

Unusual furnace now being built for an aluminum plant by Westinghouse Electric Corp., Pittsburgh, will stand vertically as high as a 13-story office building. This vertical furnace will be used to heat-treat long, extruded aluminum shapes required primarily by airframe builders.

Aluminum pieces 110 feet long will be suspended in the heat-treating tower, which stands about 130 feet high. At the conclusion of the heat bath, the suspended pieces will be dropped quickly into a water-filled pit of the same depth for quenching.

Built Before—Vertical furnaces of this type were built during World War II and a number of improved models have been constructed since. None, however, can accommodate extrusions longer than 60 feet. In these furnaces, temperature must be held within close limits, i.e., $925 \pm 10^{\circ}\text{F}$. Also, the temperature difference between the top and bottom of the tower must be slight.

The furnace is designed to provide a maximum temperature difference of less than 5 degrees. This is accomplished by maintaining a high rate of gas circulation. In previous aluminum heat-treating towers, the heaters and the parts to be heated were contained in a single column. In this taller furnace, combustion takes place in one tower and heated air passes into the top of the heat-treating tower that stands beside it.

Koppers Pegs '53 Goal

Production from new and expanded installations and introduction of new and improved products will considerably enlarge the services of Koppers Co. Inc. to industry and, indirectly, to the nation, General Brehon Somervell, Koppers chairman and president said in a year-end statement.

"Full production of ethylbenzene, an intermediate chemical in the production of synthetic rubber and plastics, will be reached early in 1953 at the new Williams plant of the company's Chemical Division near Port Arthur, Tex. From Port Arthur the ethylbenzene will be shipped to the Kobuta, Pa., plant of the Chemical Division.

CALENDAR OF MEETINGS

- January 11-13, Institute of Scrap Iron & Steel Inc.:** Annual meeting, Hotel Commodore, New York. Institute address: 1729 H. St. NW, Washington 6. Executive vice president: Edwin C. Barringer.
- January 12-13, Industrial Furnace Manufacturers Association:** Winter meeting, Hotel Cleveland, Cleveland. Association address: 420 Lexington Ave., New York.
- January 12-15, American Management Association:** Midwinter general management conference, Hotel Statler, Los Angeles. Association address: 330 W. 42nd St., New York 36. Information: Donald G. Keen.
- January 12-16, Society of Automotive Engineers:** Annual meeting & engineering display, Sheraton-Cadillac hotel, Detroit. Society address: 29 W. 39th St., New York 18. Secretary: John A. C. Warner.
- January 13, Mining & Metallurgical Society of America:** Annual meeting, Mining Club, New York. Society address: 11 Broadway, New York. Secretary: Lt. Col. Donald M. Liddell.
- January 15-17, National Tool & Die Manufacturers Association:** Winter quarterly meeting, Sorrento hotel, Miami Beach, Fla. Association address: 907 Public Square Bldg., Cleveland. Executive Secretary: George S. Eaton.
- January 19-23, American Institute of Electrical Engineers:** Winter general meeting, Hotel Statler, New York. Institute address: 33 W. 39th St., New York 18. Secretary: H. H. Henline.
- January 20, Cutting Tool Manufacturers Association:** Annual meeting, Hotel Statler, Detroit. Association address: 416 Penobscot Bldg., Detroit. Secretary: Emil Gairing.
- January 20-22, American Medical Association:** Congress on Industrial Health, Drake hotel, Chicago. Association address: 535 N. Dearborn, Chicago 10. Secretary: Dr. C. M. Peterson.
- January 20-22, Caster & Floor Truck Manufacturers Association:** Winter meeting, Hotel Roosevelt, New York. Association address: 27 E. Monroe, Chicago. Secretary: H. P. Doan.
- January 21-22, Steel Shipping Container Institute:** Winter meeting, Pierre & Hampshire House, New York. Institute address: 600 Fifth Ave., New York 20. Secretary: L. B. Miller.
- January 22, American Coke & Coal Chemicals Institute:** Regional meeting, Edgewater Beach hotel, Chicago. Institute address: 711 14th St. NW, Washington 5. Executive secretary: Samuel Weiss.
- January 22-23, Steel Plate Fabricators Association:** Annual meeting, Palmer House, Chicago. Association address: 37 W. Van Buren St., Chicago. Secretary: Dwight Evans.
- January 23, Malleable Founders' Society:** General meeting, Hotel Cleveland. Society address: Union Commerce Bldg., Cleveland 14. Managing director: Lowell D. Ryan.
- January 26-28, Truck-Trailer Manufacturers Association Inc.:** Annual winter meeting, Edgewater Gulf hotel, Edgewater Park, Miss. Association address: 1024 National Press Bldg., Washington. Managing director: John B. Hulse.
- January 26-30, American Society of Heating & Ventilating Engineers:** International heating & ventilating exposition, Grand Central Palace, New York. Society address: 51 Madison Ave., New York 10. Secretary: A. V. Hutchinson.
- February 1-5, Associated Equipment Distributors:** Annual meeting, Hotel Conrad Hilton, Chicago. Association address: 30 E. Cedar St., Chicago. Secretary: P. D. Hermann.
- February 2, Cleveland Engineering Society:** Annual machine design conference, society offices, 2136 E. 19th St., Cleveland 15. Information: Don Cornish.
- February 4-6, Computer Conference Committee, Institute of Radio Engineers and American Institute of Electrical Engineers:** Western computer conference, Hotel Statler, Los Angeles. Information: G. H. West, Public

Relations Dept., Consolidated Engine Corp., Pasadena 8, Calif.

February 9-11, American Road Builders' Association: Annual meeting, Hotel St. Boston. Association address: 1319 F. NW, Washington 4. Secretary: Gen. Ed. Reybold.

February 15-19, Automotive Electric Association: Annual meeting, Edgewater hotel, Chicago. Association address: Michigan Bldg., Detroit 26. Secretary: S. W. Potter.

February 16-19, American Institute of Metal & Metallurgical Engineers: Annual meeting, Hotel Statler, Los Angeles. Institute address: 29 W. 39th St., New York. Secretary: E. H. Robie.

February 16-19, Industrial Ventilation Conference: Michigan State College, E. Lansing, Mich. Co-sponsor: Division of Industrial Health, Michigan Dept. of Health. Information: K. E. Robinson, Division of Industrial Health, Lansing 4.

February 18-20, Society of the Plastics Industry Inc.: Annual reinforced plastics conference, Shoreham hotel, Washington. City address: 67 W. 44th St., New York. Executive vice president: William T. Clegg.

March 2-6, American Society for Testing Materials: Spring meeting, Hotel Statler, Detroit. Society address: 1916 Race St., Philadelphia. Secretary: Robert J. Painter.

March 2-6, Pittsburgh Section, American Chemical Society and Spectroscopy Society: Pittsburgh conference on analytical chemistry and applied spectroscopy. Hotel William Penn, Pittsburgh. Information: L. E. Pitzer, U. S. Steel Co., 525 Penn Place, Pittsburgh 30.

March 3-5, Society of Automotive Engineers: National passenger car, body and materials meeting, Hotel Sheraton-Cadillac, Detroit. Society address: 29 W. 39th St., New York 18. Secretary: John A. C. Warner.

March 6, Bituminous Coal Research Inc.: Annual meeting, Netherland Plaza hotel, Cincinnati. Institute address: 2609 First National Bank Bldg., Pittsburgh 22. Secretary: C. A. Reed.

March 8-11, American Institute of Chemical Engineers: Annual spring meeting, Hotel Buena Vista, Biloxi, Miss. Institute address: 120 E. 41st St., New York 17. Secretary: Stephen L. Tyler.

March 11, Foundry Education Foundation: Annual meeting and technical university industry advisory committee conference. Hotel Cleveland, Cleveland. Foundation address: Terminal Tower, Cleveland 13. Executive director: George K. Dreher.

March 11-12, Society of the Plastics Industry Inc.: Annual Canadian conference, Hotel Brock, Niagara Falls, Canada. Society address: 67 W. 44th St., New York 36. Executive vice president: William C. Cruse.

March 15-19, American Chemical Society: Spring meeting, Hotels Statler and Biltmore, Los Angeles. Society address: 1155 St. N.W., Washington 6. Assistant secretary: R. M. Warren.

March 16-18, National Association of Material Dealers: Annual meeting, Hotel Conrad Hilton, Chicago. Association address: 271 Madison Ave., New York. Secretary: Clinton M. White.

March 16-20, National Association of Construction Engineers: Annual conference, Hotel Sherman, Chicago. Association address: 1 Milam Bldg., Houston 2. Secretary: A. Campbell.

March 17-18, Steel Founders' Society of America: Annual meeting, Edgewater Bldg. hotel, Chicago. Society address: 920 Land Bldg., Cleveland. Secretary: F. K. Donaldson.

March 18-20, American Society of Tool Engineers: Annual meeting, Hotel Statler, Detroit 21. Executive secretary: Harry Conrad.

March 19, National Industrial Conference Board: General session, Netherland Plaza hotel, Cincinnati. Board address: 247 Ave., New York. Secretary: Clyde Rogers.

March 19-20, American Hot Dip Galvanizing Association Inc.: Annual meeting, Netherland Plaza hotel, Cincinnati. Association address: 1506 First National Bank Bldg., Pittsburgh 22. Secretary: Stuart J. Son.

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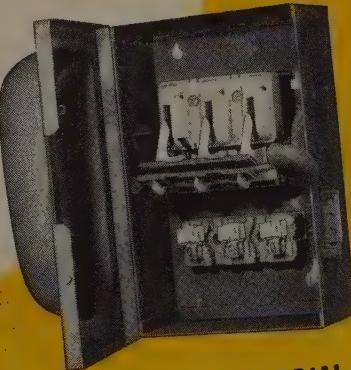


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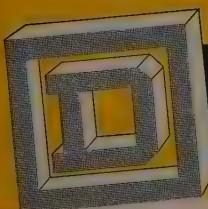


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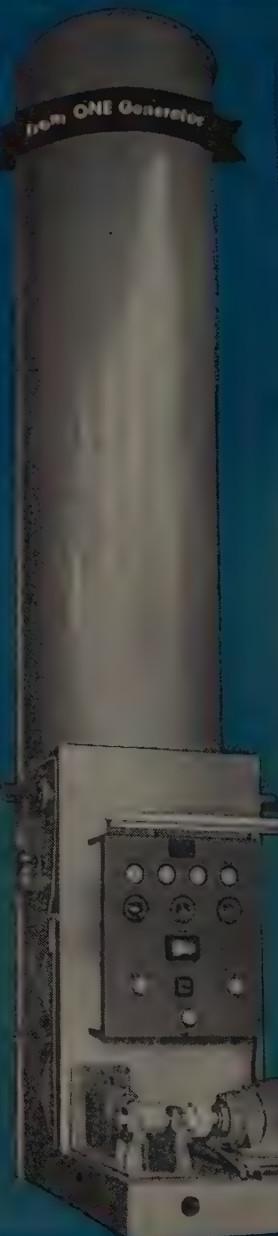
Annealing
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Nitrogen for drug making
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NEW

PRODUCTS and equipment

Reply cards on page 93 will bring you more information on any new products and equipment in this issue

Proved Forging Furnace ... good operator protection

iring method protects operator in extreme heat usually associated with forging furnaces. By introducing gas and air at the slot, flames are kept in the furnace and



not come out the front. Neither water nor air curtain is required. In addition, scale is held to a minimum because of luminous heat achieved by gas and air induction method. Circular motion of gases inside the furnace permits complete combustion. Slot of uniform height, without obstructions, and can be made in any length. Morrison Industries Inc., Dept. ST, 17100 Miles Ave., Cleveland 28, O.

REPLY CARD—CIRCLE NO. 1

Forging, Straightening Presses

... capacities: 15 to 300 tons

Gap-type presses for forcing and straightening operations are available in 11 forcing and 11 straightening models. All are powered electrically with capacities ranging from 15 to 300 tons.

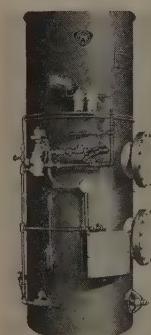
Straightening presses have a self-contained power unit and adjustable stroke control for both directions of stroke. Combined hand and foot lever provides sensitivity



that permits operator to apply any pressure up to maximum by increasing pressure on the control valve. Forging presses have a two-speed ram advance and extra-large table, permitting their use on a wide variety of operations. Stroke can be preset for both directions. Dake Engine Co., Dept. ST, Grand Haven, Mich.

USE REPLY CARD—CIRCLE NO. 2

Blast Cleaning Machine ... continuous blast cycle



This automatic abrasive blast cleaner is a double chamber machine with continuous blast cycle that eliminates shutdown time normally required for reloading. Refilling cycle is entirely automatic and does not depend on outside sources, such as a synchron-

ized timing device, motor-driven pumps or valves.

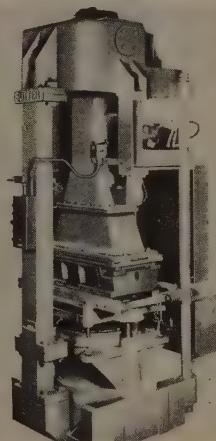
Built-in cycle unit is not influenced by type or rate of abrasive flow. Macleod Co., Dept. ST, 2332 Bogen St., Cincinnati 22, O.

USE REPLY CARD—CIRCLE NO. 3

Improved Core Blower

... chamber tilts for refill

Core blower is designed for reduced maintenance, greater operating ease and increased output. One important feature is the Tilt-Fill sand chamber that tilts backward



on antifriction bearings for refills after a core is blown. When chamber is filled, it tilts forward again against a positive stop that assures accurate alignment of sand chamber and core box. Sand refill is timer controlled.

In addition to accurate alignment, this feature eliminates need for tracks, springs and wheels required when chamber is transferred to refill. Result is simplified assembly requiring minimum maintenance. Blower operates on

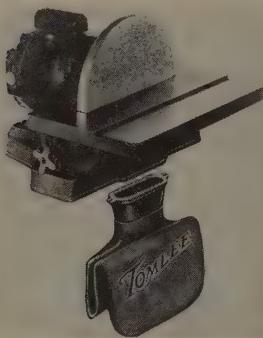
a 10-second cycle, pushbutton controlled and manually or automatically operated. Core area is 12 x 34 inches, with 15-inch maximum depth and 10-inch draw. Sutter Products Co., Dept. ST, 2005 Westwood Ave., Dearborn, Mich.

USE REPLY CARD—CIRCLE No. 4

Metal Disk Sander

. . . reaches difficult angles

Model 85 disk sander is a versatile grinding and deburring machine used also for chamfering and rounding of corners. The 10-inch sander is well adapted for getting into difficult angles. Unit is built from heavy cast iron with preci-



sion machined and balanced face plate to eliminate vibration.

Table is accurately ground and slotted to accommodate a miter gage for forming any compound angle up to 45 degrees. Table size is 15½ x 9¾ inches; height, 12 inches. Dust collector is offered for easy attachment. Tomlee Tool & Engineering Co. Inc., Dept. ST, Minneapolis 1, Minn.

USE REPLY CARD—CIRCLE No. 5

Small Electric Counter

. . . with front panel mounting

A small compact, four-digit electric counter is made with front panel mounting and front of panel reset. Requiring a panel opening of 2 13/16 x 1 11/16 inches, the device is inserted from the front and attached by four screws. With a current draw of approximately 3 watts, counter may be operated in the plate circuit of electronic tubes as well as actuated by any suitable switch. Pro-

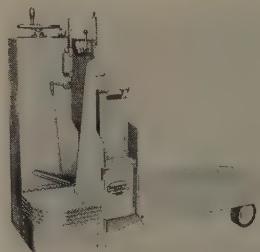
duction Instrument Co., Dept. ST, 704-16 W. Jackson Blvd., Chicago 6, Ill.

USE REPLY CARD—CIRCLE No. 6

Electric Platform Truck

. . . operates in 6-foot aisles

Riding-type electric platform truck permits 6-foot aisle operation. The compact, lightweight and maneuverable handling unit is made in 6, 7, 9 or 11-inch plat-



form heights with 4000-pound capacity. Platform lengths vary from 36 to 72 inches; overall lengths, from 61 to 97 inches.

The truck, third model in the manufacturer's Transveyor line, features four-wheel construction with compensating suspension. This provides load equalization on both front wheels, regardless of floor conditions. Automatic Transportation Co., Dept. ST, 149 W. 87th St., Chicago 20, Ill.

USE REPLY CARD—CIRCLE No. 7

Production Turntable

. . . remote control available

Production turntable is controllable from a remote point, instantly reversible and completely variable in speed from 0 to 20 rpm. Like a radio station control, speed of



the Flexi-Turn table can be accelerated or decelerated at will by a simple dial.

Advantages are reported where

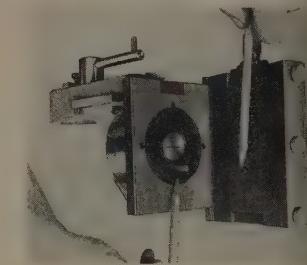
work speed should vary with job or operation. Processes include testing, gaging, inspecting; packaging, packing, collating; soldering, bronzing, welding; and assembling. To free operator's hands, both reversing and speed switches can be modified for foot control. Disks 18 inches diameter, mounted on a 11-inch diameter casting that handles any load to 200 pounds. G. Dorothea Mechanisms, Dept. 81-01 Broadway, Elmhurst, N.Y.

USE REPLY CARD—CIRCLE No. 8

Grinding Wheel Dresser

. . . micrometer base detachable

Versatile grinding wheel dresser can be used for cylindrical or surface grinding. Snapped out of its micrometer base it is ready, with proper fixtures, for cylindrical



grinding to 0.0001-inch accuracy. It can be used in its base for surface grinding to the same accuracy. In addition, the unit is applicable to under-the-wheel dressing.

Angles are dressed by continuing to push the handle in either or both directions after radius is formed. Diamond returns to center position automatically after dressing the angles. Dressers swivel on stainless steel ball bearings, completely protected from dust. J. & Tool Co. Inc., Dept. ST, 644 W. Pleasant Ave., Livingston, N.J.

USE REPLY CARD—CIRCLE No. 9

Cleaning Solvent

. . . for assembled motors

This solvent cleans electric motors and generators while they are still assembled. A motor can be completely submerged in the cleaner, plugged into electric current and allowed to run from 3 to 5 minutes. Motor is removed and dried with compressed air. Also, t

ur can be sprayed into the inside of the motor while it is in action. Shaler Co., Dept. ST, Sun, Wis.

PLY CARD—CIRCLE No. 10

compressing Unit processes regular plant air

Instrument-quality compressed air is provided by dehydrating and filtering ordinary plant air in the model B-30-D compressing unit. Filtering unit is made of wire mesh, to

h flannel is securely attached. Bridge has a radial fin design provides over 540 sq in. of cooling area. When the filter becomes dirty, entire cartridge can be replaced quickly.

ondensing unit is designed to provide greatest possible heat exchange area. As air passes over 400-sq in. surface area, its dew point is lowered to within 2 or 3 degrees of cooling water temperature. A float-operated, snap-action valve is an integral part of each. Hankison Corp., Dept. ST, more Bldg., 951 Banksville Pittsburgh 16, Pa.

PLY CARD—CIRCLE No. 11

1-Speed Spin Tester checks vibration effects

Spin testing unit is designed for 1-speed testing of jet engine parts. Equipment is made in three sizes for testing parts weighing a minimum 2500, 200 and 15 pounds.

first takes maximum part diameter of 55 inches and spins at 100 rpm; the second, 20 inches diameter at 60,000 rpm; the third, 12 inches diameter at 100,000 rpm.

Tester is comprised of a vacuum source unit, spin pit and turbine remote control operating stand. Rotating the part at very high speeds subjects it to abnormal centrifugal force, providing a check on mechanical perfection



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and vibration characteristics. This process can also be used to click bond of plating to various parts. To cut temperature rise from friction, the spin pit is evacuated



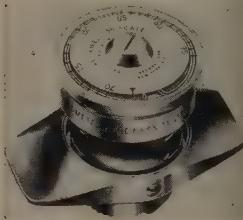
down to about 200 microns of mercury absolute. Warren Brothers Mfg. Division, Warren Brothers Roads Co., Dept. ST, Cambridge, Mass.

USE REPLY CARD—CIRCLE No. 12

Portable Hardness Tester

. . . gives on-the-job readings

Ernst tester makes available portable instrument for superficial on-the-job readings, permitting metal hardness tests without damaging the material or part. Tester gives direct dial readings in Rock-



well 15N scale, 70-95. In use, tester is simply placed on material and handgrips pressed down to get a direct reading.

Design eliminates base-plate pressure screw clamp attachment. Tester has spring-loaded diamond penetrator indentor. Movement of indentor into material is magnified about 3000 times by fluid displac-

USE A REPLY CARD

Just circle the corresponding number of any item in this section for more information.

INFORMATION

AVAILABLE FOR THE ASKING

Induction Motors

Brud Machine Works, Motor Div. has a pertinent to application of speed induction motors from $\frac{1}{4}$ hp with spindle speeds ranging from 3600 to 21,000 rpm is contained in 12-page illustrated bulletin. Proper placement of motor is ed along with four types of braking. Motors feature central thrust loader built into spindle bearing assembly.

Substation Transformers

Wagner Electric Corp. — A table of standard accessories for variations of oil-filled and Noflamol substation transformers can be obtained by requesting this interesting catalog of Wagner Industrial Products. If you specify transformers from 112½ to 2000 kva, you'll find this information.

Chromium Type Stainless

Aaron Steel Corp. — Fabricating sections and much other useful information on straight chromium stainless steel is contained in a well-illustrated booklet. Properties and typical applications given.

O-Ring Data

Watson & Knight Co. — Brief but comprehensive data on manufacture and application of O-rings as static and dynamic seals is contained in 16-page illustrated booklet No. 1000. Complete machining details for use with and without back up or non-extrusion washers are also tabulated. Properties of basic polymers are outlined, and ASTM and AMS specs are printed as well.

Pumps

Worthington Co. — Do you want 96-pages of facts, specifications, application information and details of a complete line of pumps? You can get just that in 6-page illustrated industrial catalog I-52 on industrial pumps. Among

types covered are vertical and horizontal centrifugal, turbine, rotary, piston and triplex pumps. Piping and pumping data are tabulated in engineering reference section.

74. Fabricated Fittings

Naylor Pipe Co. — Specifications and photos of standard and special fabricated fittings for light weight pipe contained in 4-page bulletin 525 which serve as a practical help in planning piping and equipment layouts.

75. Retaining Rings

Waldes Kohinoor Inc. — 52-page catalog on "Truarc Retaining Rings" is packed with engineering specifications and other data covering 17 different types and more than 600 different sizes. Rings are made of carbon spring steel from 0.250 through 4-in. sizes and have tensile strength limits within range of 238,000 to 280,000 psi. Accessory tools are also covered.

76. Pipe Prices

National Supply Co., Spang-Chalfant Div. — Price, discount and size information on the various types of pipe offered by this company are found on card No. 17. Nominal pipe size, wall thickness and other data are given.

77. Unit Heaters

D. J. Murray Mfg. Co. — Illustrated folder on Grid unit heaters shows typical installations of these industrial space heaters and includes testimonials of users as well as complete data on various models.

78. Chucking Tools

Scully-Jones & Co. — A holding method taking advantage of the elastic properties in metal is used in Roll-Lock chucking tools, described and illustrated in 52-page bulletin No. 17-50. Standard stock sizes of mandrels, arbors and chucks are listed, along with special tools and applications.

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6	16	26	36	46	56	66	76	86
7	17	27	37	47	57	67	77	87
8	18	28	38	48	58	68	78	88
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79. Tool Bits & Turning Tools

Gorham Tool Co.—Manufacturing methods, design features and sizes of Gorham ground tool bits and turning tools are found in 4-page illustrated bulletin. Tools for commercial field, heavy duty turning, soft or abrasive stock and for fast parting are listed.

80. Ball & Roller Bearings

Gwiliam Co.—20-page illustrated catalog No. 28 describes various types of ball thrust, thrust, journal roller, industrial roller and special bearings as well as steel, bronze, Monel and stainless steel balls and steel rolls. Complete specifications are given on each series.

81. Metal Stamping

Crosby Co.—How to improve products through metal stampings is theme of 24-page well-illustrated booklet which explains and illustrates methods of improving products, reducing their cost and extending their service life. Concise analyses of 13 stamped parts and assemblies are presented.

82. Fabrication Facilities

E. D. Jones & Sons Co.—Photographs of plant and equipment, data on plant facilities and details of equipment, including shears, punches, press brakes and welding, flame-cutting and grit blasting machinery, are included in 4-page brochure on plant of this paper machinery producer.

83. Rust Preventive Packaging

Angier Sales Corp. — Illustrated broadside "Vapor from Paper Stops Rust" shows dozens of uses of VPI Wrap for packaging all types of metal parts and assemblies for shipment, handling or storage. Easy to use and available in wide range of sizes, VPI Wrap protects metal without use of other compounds.

84. Package Testing

Hinde & Dauch Paper Co.—"How to Test Corrugated Boxes" is title of 24-page illustrated booklet which is No. 11 in the Little Packaging Library. It describes all of the factors needed to assure selection and application of the proper corrugated container for packaging various products.

85. High Strength Steel

Jones & Laughlin Steel Corp. — "The Transportation Steel — Otiscoloy" is the title of a 32-page illustrated brochure which outlines the

properties, applications and fabrication methods for this high strength steel. It resists corrosion and abrasion, is easily welded and forged and has great strength for equivalent weight.

86. Degreaser Operation

Manufacturers Processing Co. — Do's and don't's for safety, economy and clean work are presented in detail in this 24-page illustrated "Greaser Operation Manual." Vapor greasing advantages are listed and trouble-shooting hints are given.

**EDITORIAL REPRINTS:****87. Seattle Steel Plant**

Seidelhuber Steel Rolling Mill Corp.'s future expansion plans are reported by Seattle correspondent R. Hill in STEEL reprint "Pacific Northwest Steel Plant in Commercial Operation." Facilities for increasing mill's capacity from 60,000 to 200,000 tons a year are scheduled and include a 70-ton electric furnace.

88. Power System Planning

How adequate is the so-called "adequate" electrical system in mills? Do all segments of the system reflect design flexibility? They should be able to handle normal and emergency loads and adjust to expanded future loads. F. L. Aime, electrical engineer of Anaconda Wire & Cable Co., outlines a system fit plans for future loads.

89. Welding Jet Parts

Various materials used in the fabrication of jet engines invite application of several welding methods. Welding of dissimilar metals is one of the problems. K. H. Koopman, Linde Air Products Co. engineer, discusses tungsten-arc, shielded inert gas metal arc and submerged arc welding in STEEL reprint "Welding Meets Jet Engine Challenge."

90. Jig Versatility

"Versatility in a Jig" is title of STEEL reprint by F. E. Bailey, English tool engineer, in which he describes with full line drawings a jig which will enable 16 different sized holes to be drilled in any $\frac{1}{4}$ to $1\frac{1}{2}$ -in. diameter shaft. Range of drill bushings mounted over three different-sized blocks gives this jig its versatility.

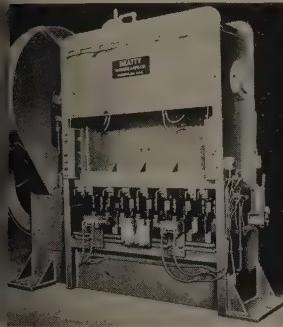
in the capillary tube. Maximum indentation is 0.003-inch; maximum diameter of penetration, 1/8-inch. Newage International Co., Dept. ST, 235 E. 42nd St., New York 17, N. Y.

REPLY CARD—CIRCLE No. 13

Angle and Angle Punch

capacity: 250 tons

angles, webs of sections or flat plates can be punched on this No. 10 Guillotine plate and angle punch. The model has 250 ton capacity, is furnished with dies and positioners. Distance between housings is 74 inches. Ram is 72 inches long,



to left; 24 inches, front to rear. Ram has 2 1/2-inch stroke. It is of mechanical type. Beatty Machine & Mfg. Co., Dept. ST, Indianapolis, Ind.

REPLY CARD—CIRCLE No. 14

Measuring Instrument

checks drill point angle

matrix drill point measuring instrument checks the correct drill point angle and its centrality. On common indicator dial centrality read directly to 0.001-inch and angle to 1 degree. Instrument is available in two sizes: 1/4 to 3/4-inch and 3/4 to 2 1/2 inches. Engis Equipment Co., Dept. ST, 431 S. Dearborn St., Chicago 5, Ill.

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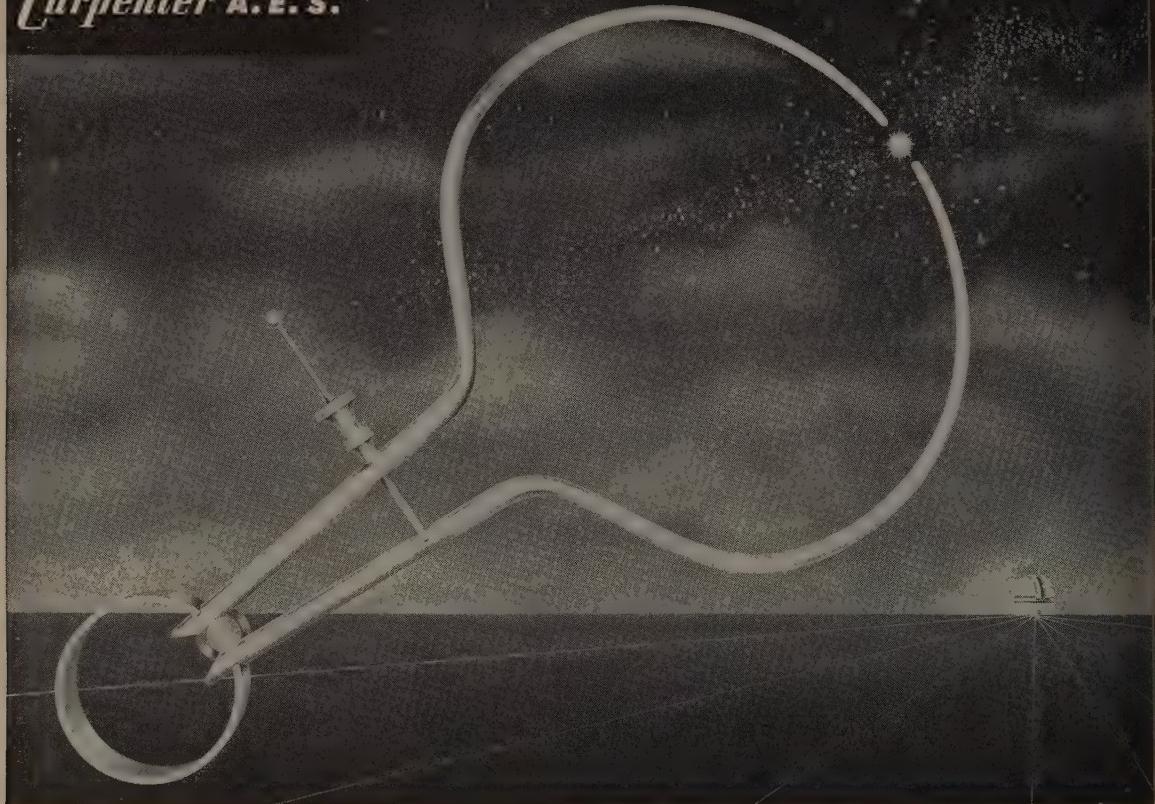
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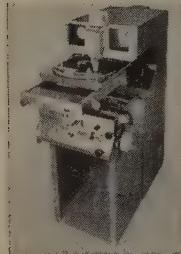


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Finding a Faster Way to Measure a Star



Another example of how Carpenter Application Engineering Service is working for industry

The giant 200-inch telescope at California's Mt. Palomar Observatory was picking up thousands of stars missed by other telescopes. But the job of measuring and coordinating the data revealed by the photographs was so big that astronomers couldn't keep abreast of it. Then the delicate astrophotometer

was developed and the problem was solved. The new device mechanically computes the size of a star in a fraction of the time trained astronomers could do it with former devices.

Naturally, such a precise instrument posed quite a few materials problems. One was the type of steel for the hardened ways on which the machine travels horizontally back and forth. Many different special steels were tried. All failed because

they couldn't meet the exacting straightness that was required.

Then, Carpenter Application Engineering Service was called in . . . and Carpenter Vega, a new air-hardening steel that shows practically no distortion in heat treatment was put to work. Used successfully for thousands of critical tool and die applications, Vega has proved to be the only steel found to stay straight enough in the 20" lengths of the ways. Are there applications in your plant where a steel providing this kind of performance could give your product extra competitive advantages?

Time and again, industry is finding new ways to save money and improve the salability of products with the help of Carpenter Application Engineering Service . . . a service that uses *imagination* to apply steels for best results. A.E.S. yours to profit by when you do business with Carpenter. THE CARPENTER STEEL COMPANY, 139 W. Bern St., Reading, Pa.



Carpenter STEEL

Tool, Alloy and Stainless Steels

Pioneering in Improved Tool, Alloy and Stainless Steels Through Continuing Research

CONTINUED heavy demand for steel is keeping steel producers cautious in booking new business. They don't want to be loaded with more orders than they can fill.

Some mills normally don't book orders for more than a month in advance, but of those that book on a quarterly basis a good many are not accepting orders now for delivery beyond April on the most-wanted products. Many of the mills are already burdened with a carryover of orders.

THE BRAKE—Influencing producers to go slow in booking second-quarter orders is the conclusion that industrial activity, and accompanying steel demand, will remain strong through the first half of this year. Too, there is growing belief that good business will continue into and through the last half.

Another factor influencing caution in order-taking is the question of what course General Eisenhower, after he is inaugurated as President, takes to end the Korean war. A sharp step-up in our offensive might intensify steel demand.

COLOSSUS—Regardless of what happens, the United States has more capacity than ever before to supply the steel needs. The American Iron & Steel Institute announced the steel industry's capacity for producing steel for ingots and castings was 117,547,470 net tons as of Jan. 1, 1953. However, the weekly operating rate of the industry will be lower, at least for awhile, than it was in the latter part of 1952, although tonnage of production will be no less, but probably greater. During all of 1952, the operating rate was based on the industry's capacity as of Jan. 1 of that year, even though capacity grew 8,959,800 tons during the year. Now the rate will be calculated on the Jan. 1, 1953, capacity of 2,254,459 net tons a week, instead of the Jan. 1, 1952, total of 2,077,040 tons.

Reflecting the revision, the steel industry's rate of producing steel for ingots and castings in the week ended Jan. 10 was 98 per cent of capacity. On the old basis it would have been 106.5 per

cent. Yield was approximately 2,213,000 net tons.

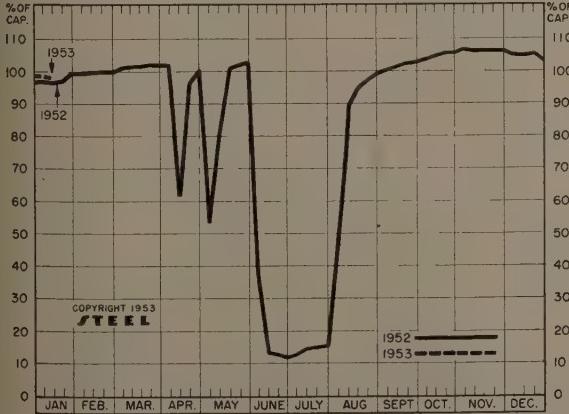
WARY—Even though steel demand and production now are high and optimism for the last half of the year is growing, some people in the steel industry have their fingers crossed for the second six months. They note the low level of business in the bolt and nut industry, which they say has been a good barometer of what the steel industry can expect six months later. Hurting bolt and nut makers is competition from European countries, especially France and Belgium. Foreign makers not only are making themselves felt in the export market but they are competing to an increasing degree for domestic business along the Eastern Seaboard, with prices ranging from 5 to 10 per cent under domestic levels.

COMPETITION—In Canada, too, the competition from European countries will be felt increasingly. It is now apparent that European steel mills will reduce prices to retain the grip they achieved on the Canadian steel markets in recent years when steel was in short supply. Further price cuts may be made later as steel becomes increasingly available on the European continent.

IMPACT—The automobile and appliance industries' renewed pressure for steel is felt over a number of products. One is stainless strip, which the auto makers are using increasingly for bright work, including a snap-on attachment that gives the resemblance of wire wheels. Surge in demand for steel for appliances is accompanied by a strengthening in demand for silicon strip for motors for them.

MORE FREEDOM—Still hindering the procurement of steel are government regulations, although the yearend brought relaxation of some of them. On Jan. 1, steel inventory limits automatically returned to 45 days. Since the steel strike they had been 30 days. This return, however, should not have any great effect on current demand for steel. The Controlled Materials Plan limits the amount of steel consumers can buy.

NATIONAL STEELWORKS OPERATIONS



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STEEL

DISTRICT INGOT RATES

Percentage of Capacity Engaged at Leading Production Points

	Week Ended Jan. 10	Change	Same Week 1952	1951
Pittsburgh	103.5	+ 0.5*	98	97.5
Chicago	105.5	- 1*	102.5	101.5
Mid-Atlantic	100	0	101.5	100
Youngstown	106	0	106	105
Wheeling	101	+ 0.5	104	95
Cleveland	106	- 1*	94.5	103
Buffalo	106.5	0*	104	104
Birmingham	108	0	104	100
New England	89	- 1	91	88
Cincinnati	93	+ 23*	103	92
St. Louis	93	+ 4.5	78	95
Detroit	101.5	- 5.5	104.5	107
Western	109	+ 1	107.5	102
Estimated national rate	98†	- 0.5	96.5	99

*Based on weekly steelmaking capacity of 2,254,459 net tons in 1953; 2,077,040 tons in 1952; 1,999,034 tons in 1951.

†Change from revised rate for preceding week.

Composite Market Averages

FINISHED STEEL PRICE INDEX:	Jan. 6	Dec. 30	Month	December
Bureau of Labor Statistics	1953	1952	Ago	Average
(1947-1949=100)	130.7	130.6	130.6	130.6

AVERAGE PRICES (BUREAU OF LABOR STATISTICS)

Week Ended Jan. 6, 1953

Units are 100 lb except where otherwise noted below in parentheses. For complete description of products see insert following p. 28, STEEL, Sept. 8, 1952.

Rails	\$3.775	Sheets, C.R. carbon	\$5.275
Track spikes	6.650	Sheets, galv.	6.915
Track bolts	9.955	Strip, C.R. carbon	5.100
Tie plates	4.775	Strip, C.R. stainless (lb.)	0.325
Joint bars	4.925	Pipe, black, buttweld (100 ft.)	7.090
Plates, carbon	4.150	Pipe, galv. buttweld (100 ft.)	8.997
Structural shapes	4.200	Boiler tubes (100 ft.)	31.663
Bars, tool steel (lb.)	1.576	Tim plate (100 lb base box)	8.950
Bars, 3120 alloy	6.575	Terne plate (100 lb base box)	7.750
Bars, stainless (lb.)	0.149	Wire, carbon, merchant	6.075
Bars, carbon	4.100	Wire, fence, galv.	6.458
Bars, reinforcing	4.050	Nails (100 lb kegs)	7.410
Bars, C.F. carbon	5.925	Wire, barbed (80 rod spool)	5.920
Sheets, H.R. carbon	4.125	Woven wire fence (20 rod roll)	13.720

FINISHED PRICE INDEX, Weighted:

Calculated by STEEL*	Jan. 8	Week	Month	Year	5 Yrs.
	1953	Ago	Ago	Ago	Ago
Index (1935-39 av.=100)	181.31	181.31	181.31	171.92	132.93
Index in cents per lb.	4.912	4.912	4.912	4.657	3.601

ARITHMETICAL PRICE COMPOSITES:

Calculated by STEEL*

Finished Steel NT	\$110.98	\$110.98	\$110.98	\$106.32	\$78.05
No. 2 Fdry, Pig Iron, GT.	55.04	55.04	55.04	52.24	38.78
Basic Pig Iron, GT.	54.66	54.66	54.66	52.16	38.44
Malleable Pig Iron, GT.	55.77	55.77	55.77	53.27	39.48
Steelmaking Scrap, GT.	43.00	43.00	43.00	43.00	40.08

*For explanation of weighted index see STEEL, Sept. 19, 1949, p. 54; of arithmetical price composites, STEEL, Sept. 1, 1952, p. 130.

Comparison of Prices

Comparative prices by districts, in cents per pound except as otherwise noted. Delivered prices based on nearest production point.

FINISHED MATERIALS

	Jan. 8	Week	Month	Year	5 Yrs.
	1953	Ago	Ago	Ago	Ago
Bars, H.R., Pittsburgh	3.95	3.95	3.95	3.70	2.90
Bars, H.R., Chicago	3.95	3.95	3.95	3.70	2.90
Bars, H.R., del. Philadelphia	4.502	4.502	4.502	4.223	3.356
Bars, C.F., Pittsburgh	4.925	4.925	4.925	4.55	3.55
Shapes, Std., Pittsburgh	3.85	3.85	3.85	3.65	2.80
Shapes, Std., Chicago	3.85	3.85	3.85	3.65	2.80
Shapes, del., Philadelphia	4.13	4.13	4.13	3.918	2.965
Plates, Pittsburgh	3.90	3.90	3.90	3.70	2.95
Plates, Chicago	3.90	3.90	3.90	3.70	2.95
Plates, Coatesville, Pa.	4.35	4.35	4.35	4.15	3.40
Plates, Sparrows Point, Md.	3.90	3.90	3.90	3.70	2.95
Plates, Clemont, Del.	4.35	4.35	4.35	4.15	3.40
Sheets, H.R., Pittsburgh	3.775	3.775	3.775	3.60-75	2.80
Sheets, H.R., Chicago	3.775	3.775	3.775	3.60	2.80
Sheets, C.R., Pittsburgh	4.575	4.575	4.575	4.35	3.55
Sheets, C.R., Chicago	4.575	4.575	4.575	4.35	3.55
Sheets, C.R., Detroit	4.775	4.775	4.775	4.55	3.70
Sheets, Galv., Pittsburgh	5.075	5.075	5.075	4.80	3.90
Strip, H.R., Pittsburgh	3.75-4.225	3.75-4.225	3.75-4.225	3.75-4.00	2.80
Strip, H.R., Chicago	3.725	3.725	3.725	3.50	2.80
Strip, C.R., Pittsburgh	5.10-5.80	5.10-5.80	5.10-5.80	4.65-5.35	3.55
Strip, C.R., Chicago	5.35	5.35	5.35	4.90	3.65
Strip, C.R., Detroit	5.30-6.05	5.30-6.05	5.30-6.05	4.85-5.60	3.70
Wire, Basic, Pittsburgh	5.10-6.35	5.10-6.35	5.10-6.35	5.225-5.45	5.10-3.675
Nails, Wire, Pittsburgh	6.20-6.35	6.20-6.35	6.20-6.35	5.90-6.20	4.625
Tin plate box, Pittsburgh	\$8.95	\$8.95	\$8.95	\$8.70	\$6.70

SEMITRIMMED

Billets, forging, Pitts. (NT)	\$70.50	\$70.50	\$70.50	\$66.00	\$56.50
Wire rods, 3/8", Pitts. .	4.425	4.425	4.425	4.10-30	3.05

PIG IRON, Gross Ton

Bessemer, Pitts.	\$55.50	\$55.50	\$55.50	\$53.00	\$40.00
Basic Valley	54.50	54.50	54.50	52.00	37.00
Basic, del. Phila.	59.25	59.25	59.25	56.61	42.004
No. 2 Fdry, Pitts.	55.00	55.00	55.00	52.50	39.50
No. 2 Fdry, Chicago	55.00	55.00	55.00	52.50	38.00
No. 2 Fdry, Valley	55.00	55.00	55.00	52.50	36.50
No. 2 Fdry, del. Phila.	59.75	59.75	59.75	57.11	42.504
No. 2 Fdry, Birm.	51.33	51.33	51.33	48.88	37.88
No. 2 Fdry (Birm.) del. Cin.	58.93	58.93	58.93	54.49	40.74
Malleable, Valley	55.00	55.00	55.00	52.50	38.00
Malleable, Chicago	55.00	55.00	55.00	52.50	38.50
Charcoal, Lyles, Tenn.	68.50	68.50	68.50	66.00	50.00
Ferromanganese, Etna, Pa.	228.00	228.00	228.00	188.00	151.00*

*F.o.b. cars, Pittsburgh.

SCRAP, Gross Ton (including broker's commission)

No. 1 Heavy Melt, Pitts.	\$44.00	\$44.00	\$44.00	\$44.00	\$40.00
No. 1 Heavy Melt, E. Pa.	41.50	41.50	41.50	42.50	41.50
No. 1 Heavy Melt, Chicago	42.50	42.50	42.50	42.50	38.75
No. 1 Heavy Melt, Valley	44.00	44.00	44.00	44.00	39.75
No. 1 Heavy Melt, Cleve.	43.00	43.00	43.00	43.00	39.25
No. 1 Heavy Melt, Buffalo	43.00	43.00	43.00	43.00	43.50
Rails, Rerolling, Chicago	52.50	52.50	52.50	52.50	60.00
No. 1 Cast, Chicago	43.00	44.00	45.00	49.00†	63.50

† F.o.b. shipping point.

COKE, Net Ton

Beehive, Furn., Connsvl.	\$14.75	\$14.75	\$14.75	\$14.75	\$12.00-13.00
Beehive, Fdry, Connsvl.	17.00	17.00	17.00	17.50	14.00-15.00
Oven Fdry, Chicago	24.50	24.50	24.50	23.00	18.00

PIG IRON

F.o.b. furnace prices quoted under GCFP as reported to STEL. Minimum delivered prices are approximate and do not include 3% federal tax. Key to producing companies published on second following page.

PIG IRON, Gross Ton

Cleveland, intermediate, A7
Bethlehem, Pa. B2
New York, del.
Philadelphia, del.

Birmingham District
Alabama City, Ala. R2
Birmingham, S9
Woodward, Ala. W15
Cincinnati, del.

Buffalo District
Buffalo R2
Buffalo H1
Tonawanda, N.Y. W12
No. Tonawanda, N.Y. T9
Boston, del.
Rochester, N.Y. del.

Syracuse, N.Y. del.
Chicago District
Chicago I-3
Gary, Ind. U5
Indiana Harbor, Ind. I-2
So. Chicago III, W14
So. Chicago III, Y1
So. Chicago III, U5
Milwaukee, del.
Muskegon, Mich., del.

Cleveland District
Cleveland A7
Cleveland R2
Akron, O., del. from Cleve.
Lorain, O. N3

Duluth I-3
Erie, Pa. I-3
Everett, Mass. E1
Fontana, Calif. K1
Granite City, Ill. G4
St. Louis, del. (inc. tax)
Ironon, Utah C11
Geneva, Utah C11
LoneStar, Tex. L6
Minnequa, Colo. C10
Rockwood, Tenn. T3

Pittsburgh District
Neville Island, Pa. P6
Pitts., N.S. sides, Ambridge

Aliquippa, del.
McKees Rocks, del.
Lawrenceville, Homestead

Wilmersd., Monaca, del.
Verona, Trafford, del.
Brackenridge, del.

Bessemer, Pa. U5
Clairton, Rankin, So. Duque, Pa. U5

McKeesport, Pa. N3
Monessen, Pa. P7

Sharpesville, Pa. S6
Steelton, Pa. B2

Swedesvld, Pa. A3
Toledo, O. I-3

Cincinnati, del.
Troy, N.Y. R2

Youngstown District
Hubbard, O. Y1
Youngstown Y1

Youngstown Mansfield, O., del.

Mansfield, O., del.

* Low phosph. southern grade.

PIG IRON DIFFERENTIALS

Silicon: Add 50 cents per ton for each 0.25% Si or percentage thereof over base grade, 1.75-2.25%, except on low phosph. iron on which it is 1.5-2.00%.

Phosphorus: Deduct 38 cents per ton for P content of 0.70% and of manganese: Add 50 cents per ton for each 0.50% manganese over 1% or portion thereof.

Nickel: Under 0.50% no extra; 0.50-0.74%, incl., add \$2 per ton d each additional 0.25%, add \$1 per ton tom.

BLAST FURNACE SILVERY PIG IRON, Gross Ton

(Base 6.0-6.50% silicon; add \$1 for each 0.5% Si to 18%; \$1.50 for each 0.5% Mn over 1%; \$2 per gross ton premium for 0.045% max)

Niagara Falls, N.Y. P15

Keokuk, Iowa, Openhearth & Fdry. frt. allowed K2

Keokuk, OH & Fdry., 12½ lb piglets, 16% Si, frt. allowed K2

Wenatchee, Wash., OH & Fdry., frt. allowed K2

Lyles, Tenn. T3

ELECTRIC FURNACE SILVERY PIG IRON, Gross Ton

(Base 14.01-14.50% silicon; add \$1 for each 0.5% Si to 18%; \$1.50 for each 0.5% Mn over 1%; \$2 per gross ton premium for 0.045% max)

Niagara Falls, N.Y. P15

Keokuk, Iowa, Openhearth & Fdry. frt. allowed K2

Keokuk, OH & Fdry., 12½ lb piglets, 16% Si, frt. allowed K2

Wenatchee, Wash., OH & Fdry., frt. allowed K2

Lyles, Tenn. T3

CHARCOAL PIG IRON, Gross Ton

(Low phosph. semi-cold blast; differential charged for silicon over base grade; also for hard chilling iron Nos. 5 & 6)

Lyles, Tenn. T3

LOW PHOSPHORUS PIG IRON, Gross Ton

Cleveland, intermediate, A7

Steeltown, Pa. B2

Philadelphia, delivered

Troy, N.Y. R2

\$550

650

650

650

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Semifinished and Finished Steel Products

All prices quoted under GCPR as reported to STEEL, Jan. 8, 1953, cents per pound except as otherwise noted. Changes shown in italics. Code numbers following mill points indicate producing company; key on next two pages.

STRUCTURALS		PLATES, Carbon Steel		BARS & SMALL SHAPES, H. R.		Seattle B3, N14	
Carbon, Forging (INT)	Carbon Steel Stand. Shapes	AlabamaCity, Ala, R2	3.80	High-Strength Low-Alloy		So. Chicago, Ill, R2	3.95
Pa., Calif. K1	AlaskaCity, Ala, R2	3.85	Aliquippa, Pa, J5	3.90	So. Duquesne, Pa, U5	3.95	
Pa., Calif. K1	Aliquippa, Pa, J5	3.85	Bessemer, Ala, T2	3.90	So. SanFrancisco B3	4.70	
S24	Bessemer, Ala, T2	3.90	Bethlehem, Pa, B2	3.90	SparrowsPoint, Md, B2	3.95	
Alloy (INT)	Bethlehem, Pa, B2	3.90	Clairton, Pa, U5	3.90	Sterling, Ill, (1) N15	4.70	
R7	Clairton, Pa, U5	3.85	Claymont, Del, C22	4.35	Struthers, O, Y1	3.95	
Calif. K1	Cleveland, J5, R2	3.90	Cleveland, R2	5.925	Torrance, Calif, C11	4.65	
Calif. K1	Coatesville, Pa, L7	4.35	Ecorse, Mich, G5	6.875	Youngstown, R2, U5	3.95	
U5	Conshohocken, Pa, A3	4.35	Fairfield, Ala, T2	5.925			
U5	Gary, Ind, U5	4.35	Fontana, Calif, K1	6.975			
U5	Geneva, Utah C11	3.85	Gary, Ind, U5	5.925			
U5	Houston S5	4.25	Ind. Harbor, Ind, I-2	5.925			
U5	Johnstown, Pa, B2	3.90	IndianaHarbor, Ind, Y1	6.425			
U5	KansasCity, Mo, S5	4.45	Johnstown, Pa, B2	5.925			
U5	Lackawanna, N.Y, B2	3.90	Lackawanna, N.Y, B2	5.925			
U5	LosAngeles B3	4.45	LosAngeles B3	6.625			
U5	Minnequa, Colo, C10	4.30	Pittsburgh J5	5.925			
U5	Munhall, Pa, U5	3.85	Seattle B3	6.675			
U5	Minnequa, N.Y, B2	59.00	So. Duquesne, Pa, U5	5.925			
U5	Phoenixville, Pa, F4	6.10	So. SanFrancisco B3	6.875			
U5	Seattle B3	4.50	Struthers, O, Y1	6.425			
U5	So. Chicago, Ill, W5, W14	3.85	Youngstown, U5	5.925			
U5	So. SanFrancisco B3	4.40					
U5	Torrance, Calif, C11	4.45					
U5	Weirton, W.Va, W6	4.10					
U5	Wide Flange						
U5	Bethlehem, Pa, B2	3.90					
U5	Clairton, Pa, U5	3.85					
U5	Fontana, Calif, K1	4.85					
U5	Johnstown, Pa, B2	3.90					
U5	Lackawanna, N.Y, B2	3.90					
U5	Munhall, Pa, U5	3.85					
U5	Minnequa, Colo, C10	4.30					
U5	Minnequa, N.Y, B2	59.00					
U5	Phoenixville, Pa, F4	6.10					
U5	Seattle B3	4.50					
U5	So. Chicago, Ill, W5	3.85					
U5	So. SanFrancisco B3	4.40					
U5	Torrance, Calif, C11	4.45					
U5	Weirton, W.Va, W6	4.10					
U5	Alley Stand. Shapes						
U5	Clairton, Pa, U5	4.725					
U5	Fontana, Calif, K1	5.65					
U5	Gary, Ind, U5	4.725					
U5	Minnequa, U5	4.725					
U5	So. Chicago, Ill, W5	4.725					
U5	So. SanFrancisco B3	5.65					
U5	Torrance, Calif, C11	5.65					
U5	Weirton, W.Va, W6	4.10					
U5	Wide Flange						
U5	Bethlehem, Pa, B2	3.90					
U5	Clairton, Pa, U5	3.85					
U5	Fontana, Calif, K1	4.85					
U5	Johnstown, Pa, B2	3.90					
U5	Lackawanna, N.Y, B2	3.90					
U5	Munhall, Pa, U5	3.85					
U5	Minnequa, Colo, C10	4.30					
U5	Minnequa, N.Y, B2	59.00					
U5	Phoenixville, Pa, F4	6.10					
U5	Seattle B3	4.50					
U5	So. Chicago, Ill, W5	3.85					
U5	So. SanFrancisco B3	4.40					
U5	Torrance, Calif, C11	4.45					
U5	Weirton, W.Va, W6	4.10					
U5	Wide Flange						
U5	Bethlehem, Pa, B2	3.80					
U5	Clairton, Pa, U5	3.85					
U5	Fontana, Calif, K1	4.85					
U5	Johnstown, Pa, B2	3.90					
U5	Lackawanna, N.Y, B2	3.90					
U5	Munhall, Pa, U5	3.85					
U5	Minnequa, Colo, C10	4.30					
U5	Minnequa, N.Y, B2	59.00					
U5	Phoenixville, Pa, F4	6.10					
U5	Seattle B3	4.50					
U5	So. Chicago, Ill, W5	3.85					
U5	So. SanFrancisco B3	4.40					
U5	Torrance, Calif, C11	4.45					
U5	Weirton, W.Va, W6	4.10					
U5	Wide Flange						
U5	Bethlehem, Pa, B2	3.80					
U5	Clairton, Pa, U5	3.85					
U5	Fontana, Calif, K1	4.85					
U5	Johnstown, Pa, B2	3.90					
U5	Lackawanna, N.Y, B2	3.90					
U5	Munhall, Pa, U5	3.85					
U5	Minnequa, Colo, C10	4.30					
U5	Minnequa, N.Y, B2	59.00					
U5	Phoenixville, Pa, F4	6.10					
U5	Seattle B3	4.50					
U5	So. Chicago, Ill, W5	3.85					
U5	So. SanFrancisco B3	4.40					
U5	Torrance, Calif, C11	4.45					
U5	Weirton, W.Va, W6	4.10					
U5	Wide Flange						
U5	Bethlehem, Pa, B2	3.80					
U5	Clairton, Pa, U5	3.85					
U5	Fontana, Calif, K1	4.85					
U5	Johnstown, Pa, B2	3.90					
U5	Lackawanna, N.Y, B2	3.90					
U5	Munhall, Pa, U5	3.85					
U5	Minnequa, Colo, C10	4.30					
U5	Minnequa, N.Y, B2	59.00					
U5	Phoenixville, Pa, F4	6.10					
U5	Seattle B3	4.50					
U5	So. Chicago, Ill, W5	3.85					
U5	So. SanFrancisco B3	4.40					
U5	Torrance, Calif, C11	4.45					
U5	Weirton, W.Va, W6	4.10					
U5	Wide Flange						
U5	Bethlehem, Pa, B2	3.80					
U5	Clairton, Pa, U5	3.85					
U5	Fontana, Calif, K1	4.85					
U5	Johnstown, Pa, B2	3.90					
U5	Lackawanna, N.Y, B2	3.90					
U5	Munhall, Pa, U5	3.85					
U5	Minnequa, Colo, C10	4.30					
U5	Minnequa, N.Y, B2	59.00					
U5	Phoenixville, Pa, F4	6.10					
U5	Seattle B3	4.50					
U5	So. Chicago, Ill, W5	3.85					
U5	So. SanFrancisco B3	4.40					
U5	Torrance, Calif, C11	4.45					
U5	Weirton, W.Va, W6	4.10					
U5	Wide Flange						
U5	Bethlehem, Pa, B2	3.80					
U5	Clairton, Pa, U5	3.85					
U5	Fontana, Calif, K1	4.85					
U5	Johnstown, Pa, B2	3.90					
U5	Lackawanna, N.Y, B2	3.90					
U5	Munhall, Pa, U5	3.85					
U5	Minnequa, Colo, C10	4.30					
U5	Minnequa, N.Y, B2	59.00					
U5	Phoenixville, Pa, F4	6.10					
U5	Seattle B3	4.50					
U5	So. Chicago, Ill, W5	3.85					
U5	So. SanFrancisco B3	4.40					
U5	Torrance, Calif, C11	4.45					
U5	Weirton, W.Va, W6	4.10					
U5	Wide Flange						
U5	Bethlehem, Pa, B2	3.80					
U5	Clairton, Pa, U5	3.85					
U5	Fontana, Calif, K1	4.85					
U5	Johnstown, Pa, B2	3.90					
U5	Lackawanna, N.Y, B2	3.90					
U5	Munhall, Pa, U5	3.85					
U5	Minnequa, Colo, C10	4.30					
U5	Minnequa, N.Y, B2	59.00					
U5	Phoenixville, Pa, F4	6.10					
U5	Seattle B3	4.50					
U5	So. Chicago, Ill, W5	3.85					
U5	So. SanFrancisco B3	4.40					
U5	Torrance, Calif, C11	4.45					
U5	Weirton, W.Va, W6	4.10					
U5	Wide Flange						
U5	Bethlehem, Pa, B2	3.80					
U5	Clairton, Pa, U5	3.85					
U5	Fontana, Calif, K1	4.85					
U5	Johnstown, Pa, B2	3.90					
U5	Lackawanna, N.Y, B2	3.90					
U5	Munhall, Pa, U5	3.85					
U5	Minnequa, Colo, C10	4.30					
U5	Minnequa, N.Y, B2	59.00					
U5	Phoenixville, Pa, F4	6.10					
U5	Seattle B3	4.50					
U5	So. Chicago, Ill, W5	3.85					
U5	So. SanFrancisco B3	4.40					
U5	Torrance, Calif, C11	4.45					
U5	Weirton, W.Va, W6	4.10					
U5	Wide Flange						
U5	Bethlehem, Pa, B2	3.80					
U5	Clairton, Pa, U5	3.85					
U5	Fontana, Calif, K1	4.85					
U5	Johnstown, Pa, B2	3.90					
U5	Lackawanna, N.Y, B2	3.90					
U5	Munhall, Pa, U5	3.85					
U5	Minnequa, Colo, C10	4.30					
U5	Minnequa, N.Y, B2	59.00					
U5	Phoenixville, Pa, F4	6.10					
U5	Seattle B3	4.50					
U5	So. Chicago, Ill, W5	3.85					
U5	So. SanFrancisco B3	4.40					
U5	Torrance, Calif, C11	4.45					
U5	Weirton, W.Va, W6	4.10					
U5	Wide Flange						
U5	Bethlehem, Pa, B2	3.80					
U5	Clairton, Pa, U5	3.85					
U5	Fontana, Calif, K1	4.85					
U5	Johnstown, Pa, B2	3.90					
U5	Lackawanna, N.Y, B2	3.90					
U5	Munhall, Pa, U5	3.85					
U5	Minnequa, Colo, C10	4.30					
U5	Minnequa, N.Y, B2	59.00					
U5	Phoenixville, Pa, F4	6.10					
U5	Seattle B3	4					

**SHEETS, Cold-Rolled Steel
(Commercial Quality)**

	BLACK PLATE (Base Box)		
Butler, Pa. A10	4.575	Alquippa, Pa. J5	\$6.25
Cleveland J5, R2	4.575	Fairfield, Ala. T2	6.80
Ecorse, Mich. G5	4.775	Gary, Ind. U5	6.50
Fairfield, Ala. T2	4.575	Irvin, Pa. U5	7.75
Follansbee, W.Va. F4	5.575	Granite City, Ill. G4	6.70
Fontana, Calif. K1	5.525	Ind. Harbor, Ind. I-2, Y1	8.10
Gary, Ind. U5	4.575	Irvin, Pa. U5	6.50
Granite City, Ill. G4	5.275	Niles, O. R2	6.50
Ind. Harbor, Ind. I-2, Y1	4.575	Pittsburg, Calif. C11	7.25
Irvin, Pa. U5	4.575	Parsons Point, Md. B2	6.60
Lackawanna, N.Y. E2	4.575	Warren, O. R2	6.50
Middletown, O. A10	4.575	Weirton, W.Va. W6	6.50
Pittsburgh, Calif. C11	5.525	Yorkville, O. W10	6.50
Pittsburgh J5	4.575		
SparsowsPoint, Md. B2	4.575		
Steubenville, O. W10	4.575		
Warren, O. R2	4.575		
Weirton, W.Va. W6	4.575		
West Leechburg, Pa. A4	5.45		
Youngstown Y1	4.575		

SHEETS, Galv'd No. 10 Steel

Alabama City, Ala. R2	5.075	Ashland, Ky. A10	5.875
Ashland, Ky. (8) A10	5.075	Canton, O. R2	5.075
Canton, O. R2	5.075	Delphos, O. N16	5.875
Dover, O. R1	5.075	Fairfield, Ala. T2	5.875
Fairfield, Ala. T2	5.075	Gary, Ind. U5	5.875
Gary, Ind. U5	5.075	Ind. Harbor, I-2	5.875
Granite City, Ill. G4	5.50	Irvin, Pa. U5	5.875
Ind. Harbor, Ind. I-2	5.075	Kokomo, Ind. C16	6.525
Irvin, Pa. U5	5.075	MartinsFy, O. W10	5.875
Kokomo, Ind. (13) C16	5.475	Pittsburg, Cal. C11	6.625
MartinsFerry, O. W10	5.075	ParsonsPt, B2	5.875
Niles, O. N12	6.275	Torrance, Cal. C11	6.625
Pittsburg, Calif. C11	5.825		
SparsowsPoint, Md. B2	5.075		
Steubenville, O. W10	5.075		
Weirton, W.Va. W6	5.075		

SHEETS, Galvanized No. 10, High-Strength Low-Alloy

Irvin, Pa. U5	7.625
SparsowsPoint (39) B2	7.775

SHEETS, Galvannealed Steel

Canton, O. R2	5.625
Irvin, Pa. U5	5.625

SHEETS, ZincGrip Steel No. 10

Butler, Pa. A10	5.325
Middletown, O. A10	5.325

SHEETS, Electro Galvanized

Cleveland R2 (28)	5.925
Niles, O. R2 (28)	5.925
Weirton, W.Va. W6	5.775

SHEETS, Well Casing

Fontana, Calif. K1 (43)	5.10
Torrance, Calif. C11	5.275

BLUED Stock, 29 ga.

Yorkville, O. W10	7.00
Follansbee, W.Va. F4	7.10

SHEETS, Enameling Iron

Ashland, Ky. (8) A10	4.925
Cleveland R2	4.925
Ind. Har. I-2, Y1	4.925
Gary, Ind. U5	4.925
Granite City, Ill. G4	4.925
Ind. Harbor, Ind. I-2	4.925
Irvin, Pa. U5	4.925
Middletown, O. A10	4.925
Youngstown Y1	4.925

TIN PLATE, Electrolytic (Base Plate

0.25 lb	0.50 lb	0.75 lb
Alquippa, Pa. J5	\$7.40	\$7.65
Fairfield, Ala. T2	7.50	7.75
Gary, Ind. U5	7.40	7.65
Granite City, Ill. G4	7.60	7.85
IndianaHarbor, Ind. I-2, Y1	7.40	7.65
Irvin, Pa. U5	7.40	7.65
Niles, O. R2	7.40	7.65
Pittsburg, Calif. C11	8.15	8.40
SparsowsPoint, Md. B2	7.50	7.75
Weirton, W.Va. W6	7.40	7.65
Yorkville, O. W10	7.40	7.65

SHEETS, SILICON (22 Ga.) Base COILS (Cut Length 1/2 lower)

Field	Armature	Electrolyte	Dynaline
BeechBottom W10 (cut lengths)	7.85	9.10	9.90
Brackenridge, Pa. A4	8.35	9.60	10.40
GraniteCity, Ill. G4 (cut lengths)	8.55	9.80	10.00
IndianaHarbor, Ind. I-2, Y1	7.55	7.85 (34)	(41)
Mansfield, O. E6 (cut lengths)	7.20	7.35	7.85 (34)
Niles, O. N12 (cut lengths)	7.05	7.35	7.85
Vandergrift, Pa. U5	7.85	8.35	9.60
Warren, O. R2	7.55	7.85	8.35
Zanesville, O. A10	7.85	8.35	9.60

SHEETS, SILICON (22 Ga.) Base COILS (Cut Length 1/2 lower)

Transformer Grade	T-72	T-65	T-58	T-52
BeechBottom W10 (cut lengths)	10.45	11.00	11.70	12.50
Brackenridge, Pa. A4	10.95	11.50	12.20	13.00
Vandergrift, Pa. U5	10.95	11.50	12.20	13.00
Warren, O. R2	10.95	11.50	12.20	13.00
Zanesville, O. A10	10.95	11.50	12.20	13.00

SHEETS, SILICON (22 Ga.) Base COILS (Cut Length 1/2 lower)

T-100	T-90	T-80	T-73	
Butler, Pa. A10 (C.R.)	13.50	14.35	15.35	15.85
Vandergrift, Pa. U5	13.50	14.35	15.35	15.85

H.R. or C.R. COILS AND CUT LENGTHS, SILICON (22 Ga.)

Alquippa, Pa. J5	\$6.25	Fairfield, Ala. T2	\$7.85
Gary, Ind. U5	6.50	Gary, Ind. U5	7.75
Irvin, Pa. U5	7.75	Irvin, Pa. U5	7.75
Yorkville, O. W10	8.65	Yorkville, O. W10	8.65

**MANUFACTURING TERNES
(Special Coated)**

Fairfield, Ala. T2	\$7.85
Gary, Ind. U5	7.75
Irvin, Pa. U5	7.75
Yorkville, O. W10	7.75

SHETS, LT. Coated Terne, 6 lb

YORKVILLE, O. W10	\$8.65

**SHETS, Mfg. Terne, 8 lb
(Commercial Quality)**

Gary, Ind. U5	9.75

**SHETS, Long Terne Steel
(Commercial Quality)**

Gary, Ind. U5	9.75

**SHETS, Long Terne Steel
Ternes, 8 lb**

Gary, Ind. U5	9.75

SHETS, Long Terne, Ingot Iron

Middletown, O. A10	5.875

ROOFING SHORT TERNES

(8 lb. Coated)	

STRIP, Hot-Rolled Alloy

Bridgeport, Conn. (10) S15	6.05

STRIP, Cold-Rolled Alloy

Bridgeport, Conn. (10) S15	6.05

STRIP, Cold-Rolled Carbon

Cleveland, O. C18	0.26

STRIP, Cold-Rolled Low-Alloy

Cleveland, O. C18	0.41

STRIP, Cold-Rolled Carbon

Cleveland, O. C18	0.81

STRIP, Cold-Rolled Ingot Iron

Ashtabula, O. C18	1.05

STRIP, Cold-Rolled Ingot Iron

Ashtabula, O. C18	1.05

STRIP, Cold-Rolled Ingot Iron

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STRIP, Cold-Rolled Ingot Iron

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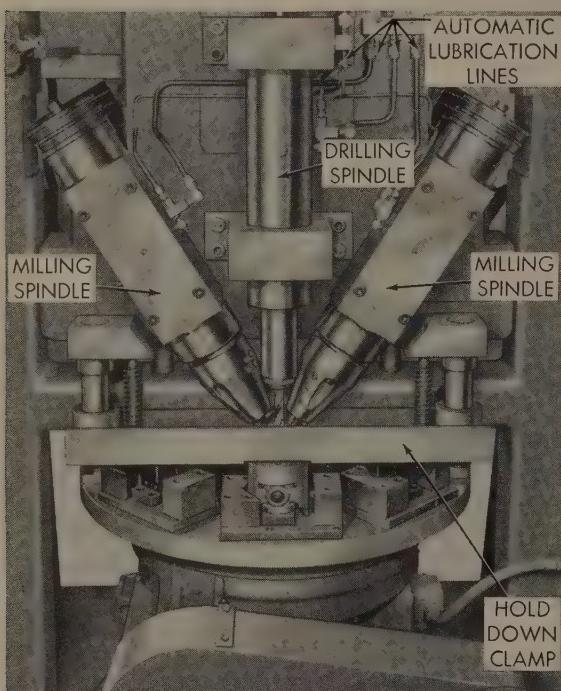
Merchant Quality		
8 gage	An'd. Galv.	So. Chicago, Ill. R2 5.225
macCity	R2 6.325	San Francisco C10 6.175
ppgs	J5 6.075	SparrowsPoint, Md. B2 5.325
Al1	6.325	Sterling, Ill. (1) N15 5.225
W12	6.075	Struthers, O. Y1 5.225
land	5.225	Torrance, Calif. C11 6.175
tordsville	M8 6.175	Waukegan, Ill. A7 5.225
ra.	A7 6.075	Worcester, Mass. A7 5.525
WIRE, Cold-Rolled Flat		Duluth, Minn. A7 6.275
h. Minn.	A7 6.075	Johnstown, Pa. B2 6.275
eld T2	6.225	Los Angeles, B3 7.225
town Tex.	S5 6.475	Minnequa, Colo. C10 6.525
town A1	6.075	Monessen, Pa. P7 6.275
III. A7	6.455	Monessen, Pa. P16 (42) 6.40
asCy Mo.	S5 6.875	Palmer, Mass. W12 6.275
mo C16	6.175	Pittsburgh, Calif. C11 6.575
ngles B3	7.025	Portsmouth, O. P12 6.275
equa C10	6.325	Roebling, N.J. R5 6.575
ssen P7	6.455	So. Chicago, Ill. R2 6.275
er W12	5.525	So. San Francisco C10 7.225
Calif. C11	7.025	SparrowsPoint, Md. B2 6.375
nth (18) P12	6.475	Torrance, Calif. C11 7.225
in A7	6.075	Trenton, N.J. A7 6.575
chicago R2	6.075	Waukegan, Ill. A7 6.275
Worcester	6.075	Worcester, Mass. A7 6.575
Fran. C10	7.025	Massillon, O. R8 (43) 5.85
rowesPt. B2	6.175	Monessen, Pa. P16 (43) 6.35
thers O. Y1	6.075	Pittsburgh, O. P12 (43) 6.10
ance, Cal. C11	7.025	Pawtucket, R.I. N12 (43) 6.85
ester A7	6.375	Trenton, N.J. R5 (43) 6.15
sed on 14c zinc; +14.50c		Worcester, Mass. T6 (43) 6.50
+17.5c zinc.		Worcester, Mass. W12(43) 6.65
ROPE WIRE		WIRE, Fine & Weaving (8" Coil)
Alton, Ill. L1	9.15	Bartonville, Ill. K4 9.42
Bartonville, Ill. K4	8.90	Buffalo W12 (43) 8.90
Fostoria, O. S1 (43)	8.85	Chicago, W13 9.32
Johnstown, Pa. B2 (43)	8.85	Cleveland A7 (43) 8.90
Monessen, Pa. P16 (43)	8.85	Crawfordsville, Ind. M8 (43) 8.90
Muncie, Ind. I-7 (43)	8.70	Fostoria, O. S1 (43) 8.90
Palmer, Mass. W12 (43)	8.85	Kokomo, Ind. C16 (43) 8.90
Portsmouth, O. P12 (43)	8.85	Johnstown, Pa. B2 (43) 8.90
Roebling, N.J. R5 (43)	8.85	Kokomo, Ind. C16 (43) 8.90
SparrowsPt. B2 (43)	8.65	Monessen, Pa. P16 (43) 8.90
Struthers, O. Y1 (43)	8.85	Muncie, Ind. I-7 (43) 9.10
Worcester, J4, T6 (43)	8.85	Palmer, Mass. W12 (43) 9.20
Cal. C11	10.60	Roebling, N.J. R5 (43) 9.20
Worcester, B2 10.84	Waukegan, Ill. A7 (43) 8.90	
Worcester A7 10.25	Worcester, Mass. A7, T7, T6 (43) 9.20	
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Split-second Indexing Machine

Mills and spot drills 700 pistons per hour

This special piston milling and spot drilling machine was designed and built for one of the large automobile companies by Turner Bros., Inc., Ferndale, Michigan. This machine utilizes two Model 24-A Hautau-Turndex Automatic Indexing Tables. One of these Turndexes is mounted on top of the machine in a vertical position and is used to actuate the slide on which are mounted the milling spindles, drilling spindle and hold down clamp (Picture 2).

This vertically mounted Hautau-Turndex causes the cutting spindles to make a split-second approach to the work, feeds the cutting tools into the work, and when the operation is completed, the heads are rapidly returned by the Hautau-Turndex.



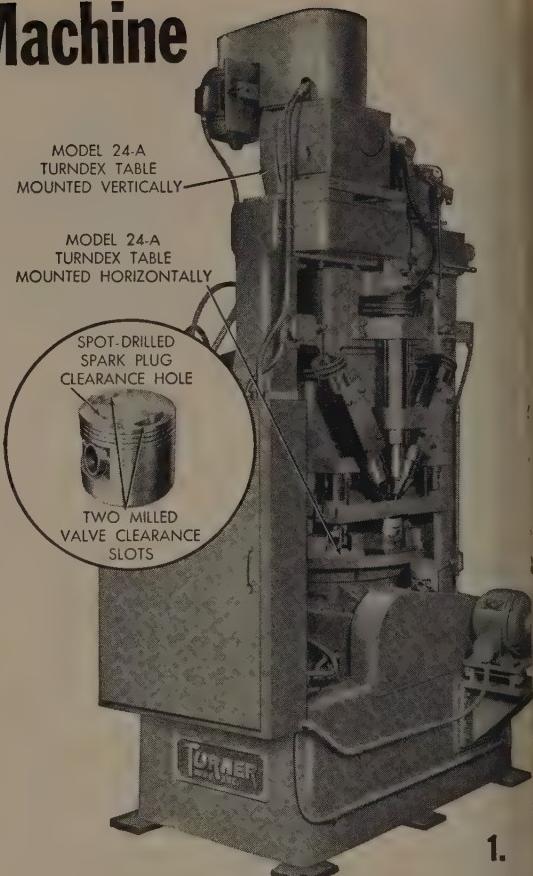
2. View shows working side of machine with piston being milled and drilled.

The horizontally mounted indexing table is located in the base of the machine (Picture 2) and has six spring loaded fixtures for holding the part to be machined.

Loading is done on the opposite side of all cutting operations, thereby affording complete safety for the operator (Picture 3). The push button station (Picture 3) allows operator to perform manually each operation separately such as feed actuation, index of fixtures or operation of any work spindle as well as automatic operation.

Another feature of this Turner machine is that, should any failure occur in any operation of the machine, the automatic safety shut-off will stop the machine immediately. Until the error is corrected, the machine cannot be restarted.

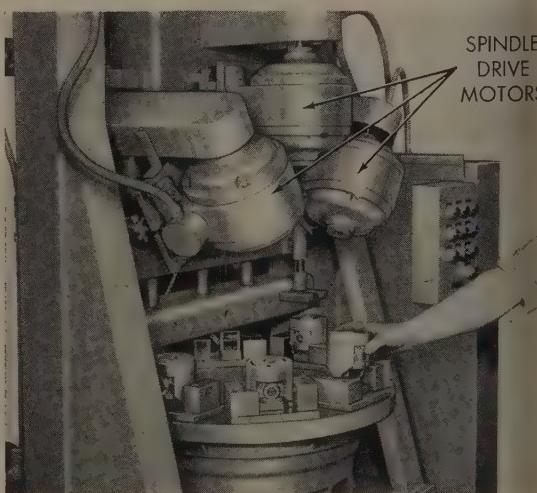
The tools for this Turner machine are set with a master piston gage that is hardened and ground to simulate the actual piston. The electrical work is built to J.I.C. Standard.



ards, and all drives are separate and all motors and gears are readily accessible for repair or replacement.

This Special Turner Indexing Machine produces 700 parts per hour and production is limited only by the fact that the operator cannot load the pieces any faster.

If you have time consuming machining operations which you would like to save on manpower, inspection time and floor space, why not write Turner Bros., Inc., 2611 Hilton Road, Ferndale 20, Michigan, describing your problem?



3. Operator loads machine in complete safety on opposite side of cutting operations.



**"The enthusiastic response
of our employees . . ."**

ALDEN G. ROACH

President, Columbia-Geneva Steel
Division and Consolidated Western Steel
Division, United States Steel Corporation.

"It is most gratifying to me that the employees of the Columbia-Geneva Steel Division and the Consolidated Western Steel Division of United States Steel Corporation have accorded meaning to their belief that the security of our nation rests upon our cooperative effort. The enthusiastic response of our employees made me doubly glad we conducted a person-to-person canvass for the Payroll Savings Plan for U. S. Defense Bonds."

The experience of Columbia-Geneva and Consolidated Western Divisions of United States Steel Corporation is not an isolated one.

Since January 1, 1951, hundreds and hundreds of companies have conducted person-to-person canvasses of their plants and offices. In every instance, employee participation in the Payroll Savings Plan has increased—sometimes from a low figure—to 60, 70, 80%. In a number of plants, participation passed the 90% mark.

The explanation is simple.

Employees want to provide for their future security.

Given an opportunity to enroll in the Payroll Savings Plan they respond immediately—as evidenced by the fact that more than 2,000,000 men and women have joined the Payroll Savings Plan since January 1, 1951.

The monthly take-home savings of the 7,500,000 now in the Payroll Savings Plan totals \$150,000,000 per month—and growing rapidly.

As a step toward your personal security, and the security of your associates, bring this page to the attention of your top executive. Tell him that—

- a person-to-person canvass of your plant can be conducted without pressure, prize awards or other stimulation. (In many plants, employee organizations have undertaken the actual distribution of Payroll Savings Application Blanks.)
- The Savings Bond Division, U. S. Treasury Department, Suite 700, Washington Building, Washington D. C., will gladly help your company with suggestions, posters, envelope stuffers and other aids.

The U.S. Government does not pay for this advertisement. It is donated by this publication in cooperation with the Advertising Council and the Magazine Publishers of America.

STEEL

The Weekly Magazine of Metalworking

WAREHOUSE STEEL PRODUCTS

(Representative prices, cents per pound for delivery within switching limits, subject to extras.)

SHEETS			STRIP			BARS			Standard Structural Shapes		PLATES	
H.R. 18 Ga., Heavier*	C.R.	Gal. 10 Ga.†	H.R.*	C.R.*	H.R. Rds.	C.F. Rds.	H.R. Alloy	41400†‡§			Carbon	Floor
(fork (city))	6.56	7.57	8.72	6.86	...	6.89	7.83‡	11.34	6.89	6.90	8.31	
(City (c'try))	6.35	7.27	8.47	6.75	...	6.59	7.53	9.54	6.39	6.60	8.01	
a (city) ..	6.71	7.56	8.74	6.75	...	6.62	7.69‡	11.38	6.76	6.95	8.18	
a (c'try) ..	6.51	7.36	8.54	6.55	...	6.42	7.49‡	11.18	6.56	6.75	7.98	
(city) ..	6.36	7.38	8.55	6.70	8.55	6.67	7.70‡	11.04	6.42	6.49	7.62	
(c'try) ..	6.11	7.13	8.30	6.45	8.30	6.42	7.45‡	10.79	6.17	6.24	7.36	
(city) ..	6.01	7.37	8.57	6.62	...	6.61	7.62‡	11.37	6.67	6.67	7.90	
(c'try) ..	5.81	7.17	8.37	6.42	...	6.41	7.42‡	11.17	6.47	6.47	7.70	
Ik, Va. ..	7.60	...	...	...	...	6.44	8.45	...	7.25	6.64	7.33
Ind, Va. ..	6.14	6.95	8.68	6.53	...	6.30	7.38	...	6.58	6.68	7.80	
(W'hse) ..	6.31	7.61	8.90	6.59	...	6.90	7.78	...	6.98	6.95	8.17	
Io (W'hse) ..	6.00	6.85	8.61	6.41	...	6.10	7.15‡	11.27	6.28	6.50	7.87	
(del) ..	5.80	6.65	8.41	6.21	...	5.90	6.95‡	11.07	6.08	6.30	7.67	
(W'hse) ..	5.80	6.65	8.00	5.94	...	5.83	6.90‡	10.65	5.95	5.95	7.18	
(W'hse) ..	6.07	6.92	8.64	6.13	7.70-8.03	6.12	7.10‡	10.92	6.42	6.47	7.52	
Ind (del) ..	6.00	6.85	8.34	6.20	...	6.09	7.10‡	10.99	6.48	6.32	7.71	
(W'hse) ..	5.80	6.65	8.14	6.00	...	5.89	6.90‡	10.79	6.28	6.12	7.51	
a, (city) ..	6.28	6.87	8.62	6.29	...	6.28	7.51‡	11.22	6.57	6.62	7.75	
go (city) ..	6.00	6.85	8.20	6.03	...	6.03	7.00‡	10.85	6.15	6.15	7.38	
go (W'hse) ..	5.80	6.65	8.00	5.83	...	5.83	6.80‡	10.65	5.95	5.95	7.18	
au, (city) ..	6.17	7.02	8.37	6.20	...	6.20	7.27‡	11.02	6.32	6.32	7.55	
au, (c'try) ..	5.97	6.82	8.17	6.00	...	6.00	7.07‡	10.82	6.12	6.12	7.35	
Louis (del) ..	6.30	7.14	8.50	6.34	...	6.33	7.40‡	11.15	6.55	6.55	7.78	
(W'hse) ..	6.10	6.94	8.00	6.14	...	6.13	7.20‡	10.95	6.35	6.35	7.58	
hm (city) ..	5.95	6.80	7.85‡	5.95	...	5.95	8.40	...	6.10	6.25	8.65	
hm (W'hse) ..	5.80	6.65	7.70‡	5.80	...	5.80	8.40	...	5.95	6.10	8.65	
Ang, (city) ..	6.80	8.65	9.80	6.95	11.40	6.80	8.80‡	12.25	6.80	6.85	9.10	
(W'hse) ..	6.60	8.45	9.60	6.75	11.20	6.60	8.60‡	12.05	6.60	6.65	8.90	
le-Tacoma ..	7.37	9.17	9.85	7.27	...	7.27	9.62‡	11.90\$	6.95	7.20	9.11	
tan (W'hse) ..	6.90	8.20	9.60	6.75	...	6.65	8.65‡	12.05	6.50	6.75	8.90	

Prices do not include gage extras; † prices include gage and coating extras, except Birmingham (coating extra excluded) and Los Angeles (gage excluded); ‡ includes 25-cent special bar quality extra; § as rolled; §§ as annealed. Base quantities, 2000 to 9999 lb except as noted. Cold-strip, 2000 lb and over; cold-finished bars, 2000 lb and over; —500 to 1499 lb; —450 to 1499 lb; —1000 to 1999 lb.

Ores

Lake Superior Iron Ore

ton, 51% (natural), lower lake ports,	
range bessemer	\$9.45
bl bessemer	9.30
bl nonbessemer	9.20
phosphorus	9.05
for adjustment for analysis, prices will be based or decreased as the case may be for ased or decreased after Dec. 1, 1950, in cable lake vessel rates, upper lake rail nts, dock handling charges and taxes on.	

Eastern Local Iron Ore

Cents per unit, f.o.b. Pa.	
dry and basic 56-62% concentrates	
unit	17.00

Foreign Iron Ore

Cents per unit, c.i.f. Atlantic ports	
basic, 60 to 68%: nom.	
long-term contract	
nom.	24.00
African hematites (spot)	26.00-28.00
Ulan iron ore, 67-69% (spot)	32.00

Tungsten Ore

Net ton unit, duty paid	
gn wolframite and scheelite, per ton unit	\$65.00
estm scheelite, mines	65.00

Manganese Ore

ganese, 48% nearby, \$1.18-\$1.22 per long unit, c.i.f. U. S. ports, duty for buyer's unit; shipments against old contracts for ore are being received from some sources 5c-87c.	
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Chrome Ore

ton, f.o.b. cars, New York, Philadelphia, Baltimore, Charleston, S. C., plus ocean freight differential for delivery to Portland, or Tacoma, Wash.	
3:1	\$39.00-\$42.00

Indian and African

3:1	44.00-45.00
no ratio	30.00-32.00

South African Transvaal

no ratio	\$27.00-\$28.00
no ratio	34.00-35.00

Brazilian

nom. (Rail nearest seller)	
3:1	\$39.00

Domestic

3:1	\$39.00
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Molybdenum

white concentrates per lb, molybdenum content, mines	\$1.00
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CHROMIUM ALLOYS

High-Chromium Ferrochrome: Contract, c.l., lump, bulk 24.75c per lb of contained Cr, c.l., packed 25.65c, ton lot 26.80c, less ton 28.20c. Delivered. Spot, add 0.25c.

Low-Chromium Ferrochrome: (Cr, 67-72%) Contract, carload, lump, bulk, max. 0.03% C

37.60c per lb of contained Cr. 0.04% C 35.50c, 0.06% C 34.50c, 0.10% C 34.00c, 0.15% C 33.75c, 0.20% C 33.50c, 0.50% C 33.25c, 1% C 33.00c, 1.50% C 32.85c, 2% C 32.75c. Carload packed add 1.1c, ton lot add 2.2c, less ton add 3.9c. Delivered. Spot, add 0.25c.

Foundry Ferrochrome, High Carbon: (Cr, 62-66%, C 5-7%) Contract, c.l. 8 M x D, bulk, 26.25c per lb of contained Cr. C.I. packed 27.15c, ton 28.50c, less ton 30.25c. Delivered. Spot, add 0.25c.

Foundry Ferrochrome, Low Carbon: (Cr 50-54%, Si 4-32%, C 1.25% max.) Contract, carload, packed, 8 M x D, 18.35c per lb of alloy; ton lot 19.2c; less ton lot 20.4c, delivered; spot, add 0.25c.

Low-Chromium Ferrochrome Silicon: (Cr 34-41%, Si 42-49%, C 0.05% max.) Contract, carload, lump, 4" x down and 2" x down, bulk, 25.75c per lb of contained chromium plus 12.4c per pound of contained silicon; 1" x down, bulk, 25.90c per pound of contained chromium plus 12.60c per pound of contained silicon. F.O.B. plant; freight allowed to destination.

Ferrochrome Silicon, No. 2: (Cr 36-39%, Si 26-39%, Al 7-9%, C 0.05% max.) 25.75c per lb of contained silicon plus 18.4c per lb of contained silicon plus aluminum 3" x down, delivered.

Chromium Metal: (Min 97% Cr and 1% Fe) contract carload, 1" x D; packed, max 0.50% C grade, \$1.12 per lb of contained chromium ton lot \$1.14, less ton \$1.16. Delivered. Spot, add 5c.

SILICON ALLOYS

25-30% Ferrosilicon: Contract, carload, lump, bulk, 20.0c per lb of contained Si; packed 21.40c; ton lot 22.50c, f.o.b. Niagara Falls, freight not exceeding St. Louis rate allowed.

50% Ferrosilicon: Contract, carload, lump, bulk, 12.40c per lb of contained Si; carload packed 14.0c, ton lot 15.45c, less ton 17.1c. Delivered. Spot, add 0.45c.

Low-Aluminum 50% Ferrosilicon: (Al 0.40% max.) Add 1.3c to 50% ferrosilicon prices.

75% Ferrosilicon: Contract, carload, lump, bulk, 14.3c per lb of contained Si, carload

packed 15.8c, ton lot 16.75c, less ton 18.0c. Delivered. Spot, add 0.8c.

90-95% Ferrosilicon: Contract, carload, lump, bulk, 17.0c per lb of contained Si, carload packed 18.2c, ton lot 19.15c, less ton 20.2c. Delivered. Spot, add 0.25c.

Silicon Metal: (Min 97% Si and 1% max Fe) C.I. lump, bulk, regular 18.5c per lb of Si, c.l. packed 19.7c, ton lot 20.6c, less ton 21.6c. Add 0.5c for max, 0.10% calcium grade. Deduct 0.5c for max 2% Fe grade analyzing min 98% Si. Spot, add 0.25c.

Alisifer: (Approx. 20% Al, 40% Si, 40% Fe) Contract, basis f.o.b. Niagara Falls, N. Y., lump, carload, bulk, 9.90c per lb of alloy, ton lots packed 11.30c, 200 to 1999 lb 11.65c, smaller lots 12.15c.

VANADIUM ALLOYS

Ferrovaniadium: Open-hearth Grade (V 35-55%, Si 8-12% max C 3-3.5% max). Contract, any quantity, \$3.10 per lb of contained V. Delivered. Spot, add 10c. Crucible-Special

Grades (V 35-55%, Si 2-3.5% max, C 0.5-1% max), \$3.20. Primos and High Grade Grades (V 35-55%, Si 1.50% max, C 0.20% max) \$3.30.

Grainal: Vanadum Grainal No. 1, \$1 per lb; No. 6.68c; No. 79, 50c, freight allowed.

Vanadum Oxide: Contract, less carload lots \$1.28 per lb contained V₂O₅, freight allowed. Spot, add 5c.

BORON ALLOYS

Ferroboron: B 17.50% min, Si 1.50% max, Al 0.50% max, C 0.50% max). Contract, 100 lb or more, 1" x D, \$1.20 per lb of alloy. Less than 100 lb, \$1.30. Delivered, spot, add 5c. F.O.B. Washington, Pa., prices, 100 lb and over, are as follows: Grade A (10-14% B) 75c per pound; Grade B (14-18% B) \$1.20; Grade C (19% min B) \$1.50.

Borosil: (3 to 4% B, 40 to 45% Si), \$5.25 per lb contained B, delivered to destination.

Bortam: (1.5-1.9%). Ton lots, 45c per lb; smaller lots, 50c per lb.

Carbortam: (B 1 to 2%) contract, lump, loads 9.50c per lb, f.o.b. Suspension Bridge, N. Y., freight allowed same as high-carbon ferrrotitanium.

TUNGSTEN ALLOYS*

Ferrotungsten: (70-80%). 10,000 lb W or more, \$4.85 per lb of contained W; 2000 lb W to 10,000 lb W, \$4.95; less than 2000 lb W, \$5.07, f.o.b. Niagara Falls, N. Y.

* Government ceiling prices, effective May 7, 1951, f.o.b. Niagara Falls, N. Y., basis.

CEILING PRICES, IRON AND STEEL SCRAP

Prices as set forth in Office of Price Stabilization ceiling price regulation No. 5, as amended Feb. 5, 1952.

STEELMAKING SCRAP COMPOSITE

Jan. 8	\$43.00
Dec. 31	43.00
Dec., 1952	43.00
Jan., 1952	43.00
Jan., 1948	40.75

Based on No. 1 heavy melting grade at Pittsburgh, Chicago and eastern Pennsylvania.

Basing point ceiling prices per gross ton from which maximum shipping prices are computed on scrap of dealer and industrial origin; and from which ceiling on-line and ceiling delivered prices are computed on scrap of railroad origin.

Grade 1

Basing Point	No. 1 Bundles	No. 1 Dealer, Mat Indus- trial Rail- road
Alabama City, Ala.	\$39.00	\$41.00
Ashland, Ky.	42.00	44.00
Atlanta, Ga.	39.00	41.00
Bethlehem, Pa.	42.00	44.00
Birmingham, Ala.	39.00	41.00
Brackenridge, Pa.	44.00	46.00
Buffalo, N. Y.	43.00	45.00
Butler, Pa.	44.00	46.00
Canton, O.	44.00	46.00
Chicago, Ill.	42.50	44.50
Cincinnati, O.	43.00	45.00
Claymont, Del.	42.50	44.50
Cleveland, O.	43.00	45.00
Coatesville, Pa.	42.50	44.50
Conshohocken, Pa.	42.50	44.50
Detroit, Mich.	41.15	43.15
Duluth, Minn.	40.00	42.00
Harrisburg, Pa.	42.50	44.50
Houston, Tex.	37.00	39.00
Johnstown, Pa.	44.00	46.00
Kansas City, Mo.	39.50	41.50
Kokomo, Ind.	42.00	44.00
Los Angeles	35.00	37.00
Middletown, O.	43.00	45.00
Midland, Pa.	44.00	46.00
Minnequa, Colo.	38.00	40.00
Monessen, Pa.	44.00	46.00
Phoenixville, Pa.	42.50	44.50
Pittsburgh, Calif.	35.00	37.00
Pittsburgh, Pa.	44.00	46.00
Portland, Oreg.	35.00	37.00
Portsmouth, O.	42.00	44.00
St. Louis, Mo.	41.00	43.00
San Francisco	35.00	37.00
Seattle, Wash.	35.00	37.00
Sharon, Pa.	44.00	46.00
Sparrows Pt., Md.	42.00	44.00
Steubenville, O.	44.00	46.00
Warren, O.	44.00	46.00
Weirton, W. Va.	44.00	46.00
Youngstown, O.	44.00	46.00

Differentials from Base

Differentials per gross ton for other grades of dealer and industrial scrap:

OH and Blast Furnace Grades		
2. No. 1 Busheling	.....	Base
3. No. 1 Heavy Melting	.....	\$1.00
4. No. 2 Heavy Melting	.....	1.00
5. No. 2 Bundles	.....	1.00
6. Machine Shop Turnings	.....	10.00
7. Mixed Borings and Short Turnings	.....	6.00
8. Shoveling Turnings	.....	6.00
9. No. 2 Busheling	.....	4.00
10. Cast Iron Borings	.....	6.00

Elec. Furnace and Fdry. Grades		
11. Bullet, Bloom & Forge Crops	.....	+ 7.50
12. Bar Crops & Plate	.....	+ 5.00
13. Cast Steel	.....	+ 5.00
14. Punchings & Plate Scrap	.....	+ 2.50
15. Electric Furnace Bundles	.....	+ 2.00

Cut Structural & Plate:		
16. 3 feet and under	....	+ 3.00
17. 2 feet and under	....	+ 5.00
18. 1 foot and under	....	+ 6.00
19. Briquetted Cast Iron Borings	.....	Base

Foundry, Steel:		
20. 2 feet and under	....	Base
21. 1 foot and under	....	+ 2.00
22. Springs and Crankshafts	.....	+ 1.00
23. Alloy Free Turnings	....	+ 3.00

CEILING PRICES, IRON AND STEEL SCRAP

Prices as set forth in Office of Price Stabilization ceiling price regulation No. 5, as amended Feb. 5, 1952.

STEELMAKING SCRAP COMPOSITE

24. Heavy Turnings	.....	- 1.00
25. Briquette Turnings	....	Base
26. No. 1 Chemical Borings	.....	- 3.00
27. No. 2 Chemical Borings	.....	- 4.00
28. Wrought Iron	.....	+ 10.00
29. Shafting	.....	+ 10.00
31. Old Tin & Terne Plated Bundles	.....	- 10.00

Unprepared Grades

When compressed constitutes:	
32. No. 1 Bundles	..... - 6.00
33. No. 2 Bundles	..... - 9.00
34. Other than material suitable for hydraulic compression	..... - 8.00

Restrictions on Use

(1) Prices for Grades 11 and 23 may be charged only when shipped to a consumer directly from an industrial producer; otherwise ceiling prices shall not exceed prices established for grades 12 and 8, respectively.
(2) Prices established for Grades 26 and 27 may be charged only when sold for use for chemical or annealing purposes, and in the case of Grade 27, for briquetting and direct charge into an electric furnace; otherwise ceiling price shall not exceed price established for Grade 10.
(3) Prices established for Grade 28 may be charged only when sold to a producer of wrought iron; otherwise ceiling price shall not exceed ceiling price for corresponding grade of basic open-hearth.
(4) Premiums for Grades 11-18, 20 and 21 may be charged only when sold for use in electric and acid open-hearth furnaces or foundries; or in basic OH or blast furnace under NPA allocation or OPS authorization.
(5) Prices for Grade 29 may be charged only when sold for forging or rerolling purposes.

Differentials from Base

Differentials per gross ton above or below the price of Grade 1 (No. 1 railroad heavy melting steel) for other grades of railroad steel scrap:

2. No. 2 Heavy Melting Steel	.....	- \$2.00
3. No. 2 Steel Wheel	.....	Base
4. Hollow Bored Axles and Loco. axles with keyways between the wheelseats.	.....	Base
5. No. 1 Busheling	.....	- 3.50
6. No. 1 Turnings	.....	- 3.00
7. No. 2 Turnings, Drillings & Borings	.....	- 12.00
8. No. 2 Cast Steel and uncut wheelcenters	.....	- 6.00
9. Uncut Frogs, Switches	.....	Base
10. Flues, Tubes & Pipes	.....	- 8.00
11. Structural, Wrought Iron and/or Steel, uncut	.....	- 6.00
12. Destroyed Steel Cars	.....	- 8.00
13. No. 1 Sheet Scrap	.....	- 9.50
14. Scrap Rails, Random Lengths	.....	+ 2.00
15. Rerolling Rails	.....	+ 7.00
Cut Rails:		
16. 3 feet and under	....	+ 5.00
17. 2 feet and under	....	+ 6.00
18. 18 inches and under	....	+ 8.00
19. Cast Steel, No. 1	....	+ 3.00
20. Uncut Tires	....	+ 2.00
21. Cut Tires	....	+ 5.00
Bolsters & Side Frames:		
22. Uncut	.....	Base
23. Cut	....	+ 3.00
Angles, Splice Bars & Tie Plates	.....	+ 5.00
Solid Steel Axles	.....	+ 12.00
Steel Wheels, No. 3, oversize	.....	Base
Steel Wheels, No. 3	....	+ 5.00
Spring Steel	....	+ 5.00
Couplers & Knuckles	....	+ 5.00
Wrought Iron	....	+ 8.00
Fireboxes	....	+ 8.00
Boilers	....	- 6.00
No. 2 Sheet Scrap	....	- 13.00
Carsides, Doors, Car Ends, cut apart	....	- 6.00
Unassorted Iron & Steel	....	- 6.00
Unprepared scrap, not suitable for hydraulic compression	....	- 8.00

Preparation Charges

Ceiling fees per gross ton which may be charged for intransit prep-	
ration of any grade of steel scrap of dealer or industrial origin, authorized by OPS are:	
(1) For preparing into Grades No. 3, No. 4 or No. 2, \$8.	
(2) For hydraulically compressing Grade No. 1, \$6 per ton;	
Grade No. 5, \$8.	
(3) For crushing Grade No. 6, \$3.	
For preparing into:	
(4) Grade No. 25, \$6.	
Grade No. 19, \$6.	
(6) Grades No. 12, No. 13, No. 14, No. 16, or No. 20, \$10.	
(7) Grade No. 17 or No. 21, \$11.	
(8) Grade No. 18, \$12.	
(9) For hydraulically compressing Grade No. 15, \$8.	
(10) For preparing into Grade No. 28, \$10.	
Ceiling fees per gross ton which may be charged for intransit preparation of any grade of steel scrap of railroad origin shall be:	
(1) For preparing into Grade No. 1 and Grade No. 2, \$8.	
(2) For hydraulically compressing Grade No. 13, \$6.	
For preparing into:	
(3) Grade No. 16, \$4.	
(4) Grade No. 17, \$5.	
(5) Grade No. 18, \$7.	
(6) Grade No. 21, \$4.	
(7) Grade No. 23, \$4.	
Celling feed per gross ton which may be charged for intransit preparation of cast iron are limited to:	
(1) For preparing Grade No. 8 into Grade No. 7, \$8.	
(2) For preparing Grade No. 3 into Grade No. 11, \$7.	
(3) For preparing Grade No. 3 into Grade No. 1, \$4.	
CAST IRON SCRAP	
Ceiling price per gross ton for following grades shall be f.o.b. ship-point:	
Cast Iron:	
1. No. 1 (Copula)	..... \$49.00
2. No. 2 (Charging Box)	..... 47.00
3. No. 3 (Hvy. Breakable)	..... 45.00
4. No. 4 (Burnt Cast)	..... 41.00
5. Cast Iron Brake Shoes	..... 41.00
6. Stove Plate	..... 46.00
7. Clean Auto Cast	..... 52.00
8. Unstripped Motor Blocks	..... 43.00
9. Wheels, No. 1	..... 47.00
10. Malleable	..... 55.00
11. Drop broken machinery	..... 52.00

ration of any grade of steel scrap of dealer or industrial origin, authorized by OPS are:

(1) For preparing into Grades No. 3, No. 4 or No. 2, \$8.
(2) For hydraulically compressing Grade No. 1, \$6 per ton;
Grade No. 5, \$8.
(3) For crushing Grade No. 6, \$3.
For preparing into:
(4) Grade No. 25, \$6.
Grade No. 19, \$6.
(6) Grades No. 12, No. 13, No. 14, No. 16, or No. 20, \$10.
(7) Grade No. 17 or No. 21, \$11.
(8) Grade No. 18, \$12.
(9) For hydraulically compressing Grade No. 15, \$8.
(10) For preparing into Grade No. 28, \$10.

Ceiling fees per gross ton which may be charged for intransit preparation of cast iron are limited to:

(1) For preparing Grade No. 8 into Grade No. 7, \$8.
(2) For preparing Grade No. 3 into Grade No. 11, \$7.
(3) For preparing Grade No. 3 into Grade No. 1, \$4.

Celling price per gross ton which may be charged for intransit preparation of cast iron are limited to:

(1) For preparing Grade No. 8 into Grade No. 7, \$8.
(2) For preparing Grade No. 3 into Grade No. 11, \$7.
(3) For preparing Grade No. 3 into Grade No. 1, \$4.

Celling price per gross ton which may be charged for intransit preparation of cast iron are limited to:

(1) For preparing Grade No. 8 into Grade No. 7, \$8.
(2) For preparing Grade No. 3 into Grade No. 11, \$7.
(3) For preparing Grade No. 3 into Grade No. 1, \$4.

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(2) For preparing Grade No. 3 into Grade No. 11, \$7.
(3) For preparing Grade No. 3 into Grade No. 1, \$4.

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(1) For preparing Grade No. 8 into Grade No. 7, \$8.
(2) For preparing Grade No. 3 into Grade No. 11, \$7.
(3) For preparing Grade No. 3 into Grade No. 1, \$4.

Celling price per gross ton which may be charged for intransit preparation of cast iron are limited to:

(1

*For the Purchase or Sale of
Iron and Steel Scrap...*

CONSULT OUR NEAREST OFFICE



The energy and integrity of our organization is ready to serve your best interests ...

Since 1889, Luria Brothers & Company, Inc. have made fair dealings their constant aim.

**CONSULT OUR NEAREST OFFICE FOR THE PURCHASE AND SALE OF SCRAP
LURIA BROTHERS AND COMPANY, INC.**

MAIN OFFICE
LINCOLN-LIBERTY BLDG.
Philadelphia 7, Penna.

PLANTS
LEBANON, PENNA. DETROIT (ECORSE),
READING, PENNA. MICHIGAN
MODENA, PENNA. PITTSBURGH, PENNA.
ERIE, PENNA.

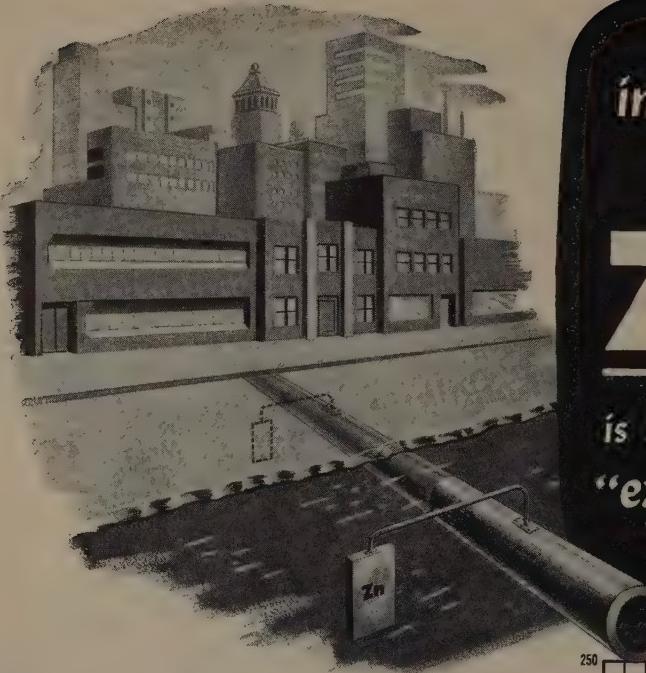


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SEATTLE, WASH.

LEADERS IN IRON AND STEEL SCRAP SINCE 1889



NEARLY 50% of all the zinc consumed annually in the United States — around 400,000 tons — is used in galvanizing, i.e., protective zinc coating on iron or steel. This is ample evidence of the firmly established position of the metal as industry's most effective and economical "sacrificial" weapon in its unceasing combat with rust. The electrochemical reaction between iron and zinc, which has resulted in the dominance of zinc in this field, is precisely the same as that which takes place in the relatively new and growing use of the metal for cathodic protection of pipe lines and other underground iron and steel structures. The sole difference between the two methods being that in cathodic protection the zinc, in the form of anodes, is buried adjacent to a pipe line and connected by a conductor, while in galvanizing the zinc is bonded to iron or steel. In either form, zinc "protects" — as has been attested to by those progressive companies who have used zinc anodes for this purpose. For example, in the Northwest, a utility company reports:

"The most interesting installation was made in 1942 on four inch bare pipe located in the seepage from an irrigation ditch that circled the brow of a hill in such a manner that the pipeline trench intersecting the irrigation ditch was kept moist throughout the season. Approximately seven hundred feet of this four inch line had been replaced twice. In the spring of 1942 leakage developed and when the pipe was uncovered it was found to be in bad condition. Pending replacement, repairs were made and seventeen zinc anodes were installed with series-parallel connections. In the press of other work, this replacement job was put aside and in 1943 it was found that no further leaks had developed. In 1948 the replacement had still not been made and we were getting a good potential-to-ground and plenty of protective current. The last test made in the spring of 1950 shows a slight increase in the potential-to-ground and the pipe has not been replaced nor have we felt it even necessary to uncover it for visual inspection."

The graph at right provides additional evidence from the State of Texas. Here are two examples, under widely dissimilar conditions, where zinc has proved itself as a highly efficient cathodic protector for underground pipe lines. This is not surprising in view of the long-recognized superiority of the metal in the field of galvanizing.

ST. JOSEPH LEAD COMPANY 250 PARK AVE., N.Y. 17

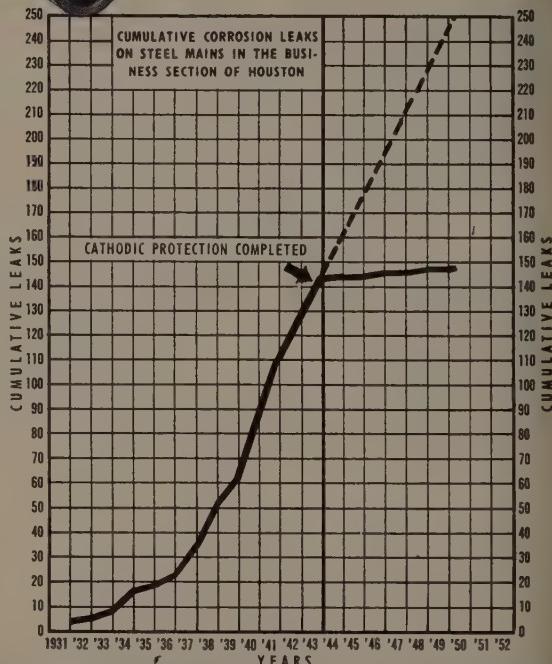
*& Cathodic
for Galvanic Protection Zinc is Standard*

ST. JOE Electro-Thermic ZINC: High grade, Intermediate,
Brass special, Prime western

*in fighting corrosion
with corrosion—*

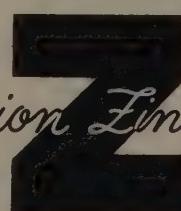
ZINC

*is Industry's most effective
"expendable" weapon!*



EFFECT OF ZINC ANODE PROTECTION ON OLD LINES. Most of the United Gas Corp.'s welded-steel-gas distribution mains, coated with hot asphalt and asbestos wrapper, were installed before 1930. Cathodic protection of mains with

zinc anodes was completed in early 1944. Curve shows cumulative leak record of these mains. Only 5 corrosion leaks occurred in the 6 years since cathodic protection was applied, comparing with 142 during 1932-1944.



BUNKER HILL
99.99+ % ZINC

The Metal Market



New Apparatus Speeds Pineapple Harvest

New apparatus developed by Kaiser Aluminum & Chemical Corp., Oakland, Calif., will expedite harvesting of pineapples which must be done quickly. Kaiser's engineers developed and tested this semi-tension field boom constructed of upper and lower ribs of extruded aluminum and a web of light gage sheet aluminum. It is high enough to clear the pineapple but not too high for pickers

Price increases on copper, aluminum and nickel are almost sure to come whether or not government price controls remain after Apr. 30

PRICE HIKES on at least three metals used by industry are almost inevitable. If carte blanche pricing power is returned to industry April 30, when Defense Production Act powers for price and wage controls expire, higher immediate prices can be regarded as a foregone conclusion. Even if some reins are kept on, suitable adjustments must be made.

Three for Sure—Copper, aluminum and nickel are straining at the leash now. Long-suffering copper producers have only to point to prevailing prices of foreign metal to justify relief. They say a supply easing would result because about 150,000 tons of copper and copper alloy scrap now withheld would enter the market. Addition of this bonus metal, plus 150,000-ton domestic production increase expected this year would mean about 300,000 tons more copper for consumers in 1953. That's much more optimistic than DPA's estimate. The agency expects total supply of CMP copper products to amount to 2,590,000 tons in 1953 as against 2,485,000 tons in 1952.

Bait Untouched—Although the

'Big Three' aluminum producers unanimously rejected the government's offer of a price boost in return for contract concessions, the industry has sniffed the bait and intends to get it without taking the hook. With decontrol they'll get a price increase without strings attached. Present thinking is in terms of one cent a pound on ingot and 5 per cent on mill products.

DPA forecasts a 28 per cent increase in available aluminum supply between the fourth quarter of 1952 and third quarter of 1953.

Sixty-Cent Nickel—Because the Canadian dollar is now worth about \$1.03 in American money, International Nickel Co. believes it is entitled to 3½ cents more for metal sold in the U. S. At the present ceiling of 56.5 cents a pound, the Canadian company is losing over a cent and a half per pound on U. S. sales. Any change in ceiling requires approval by the Canadian Defense Production minister. The company has an agreement with the U. S. government to supply nickel at a fixed price over a definite period and is now talking the

problem over with OPS.

Danger Past—Ceilings on lead and zinc, which have gone through the price mill in the past eight months, are merely academic and in no danger of break-through. Lead declined to 14.30 cents, St. Louis, after having moved up a quarter-cent on Dec. 30 to 14.55 cents.

Zinc stiffened after opening of London trading, moved up to 13 cents. But consumers are still shy about buying. Extent of average price purchases indicates lack of confidence in so swift a recovery.

Aluminum Distribution Up

Aluminum users received 1,350,000 tons of primary and secondary metal last year, topping 1951 by 8 per cent, says NPA. New facilities turned out 125,000 tons of the total 935,000 tons poured. When domestic expansion programs are completed, NPA estimates 2.25 million tons will be available for consumption, including imports and scrap. About 290,000 tons of scrap were recovered in 1952, up 7 per cent from 1951.

Nonferrous Briefs

Brass scrap is flooding the market since the calendar change. Carload purchases under ceiling prices are reported in the East.

The primary aluminum industry can now be subdivided into the "Big Three" and the "Little Three" since Harvey Machine Co. got the green light for a 54,000-ton smelter at The Dalles, Oreg.

Brass and bronze ingot business last year was worst since 1949. Shipments were off nearly 17 per cent from 1951.

STEEL'S Metal Price Averages for Dec., 1952

(Cents per pound)

Electrolytic Copper, del.	
Conn.	24.500
Lead, St. Louis	13.925
Prime Western Zinc,	
E. St. Louis	12.500
Straits Tin, New York ..	121.50
Primary Aluminum	
Ingots, del.	20.000
Antimony, f.o.b. Laredo,	
Tex.	34.500
Nickel, f.o.b. refinery ..	56.500
Silver, New York ..	83.250

NONFERROUS METALS

(Cents per pound, carlots, except as otherwise noted)

Primary Metals

Copper: Electrolytic 24.50c, Conn. Valley; Lake 24.62½c, delivered.

Brass Ingots: 85-5-5-5 (No. 115) 27.25c, 88-10-2 (No. 215) 40.00c; 80-10-10 (No. 305) 33.00c; No. 1 yellow (No. 405) 23.25c.

Zinc: Prime western 13.00c; brass special 13.25c; intermediate 13.50c; East St. Louis; high grade 14.35c, delivered.

Lead: Common 14.30c; chemical 14.40c; corrodine, 14.40c, St. Louis.

Primary Aluminum: 99% plus, ingots 20.00c, pigs 19.00c. Base prices for 10,000 lb and over. Freight allowed on 500 lb or more but not in excess of rate applicable on 30,000 lb c.l. orders.

Secondary Aluminum: Piston alloys 20.50c; No. 12 foundry alloy (No. 2 grade) 19.50c; steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 18.80c; grade 2, 18.60c; grade 3, 18.40c; grade 4, 18.20c.

Magnesium: Commercially pure (99.8%) standard ingots, 10,000 lb and over 24.50c, f.o.b. Freeport, Tex.

Tin: Grade A, prompt 121.50c.

Antimony: American 99-99.8% and over but not meeting specifications below 34.50c; 99.8% and over (arsenic 0.05% max., other impurities 0.1% max.) 35.00c; f.o.b. Laredo, Tex., for bulk shipments.

Nickel: Electrolytic cathodes, 99.9%, base sizes at refinery, unpacked, 56.50c; 25-lb pigs, 59.15c; "XX" nickel shot, 60.15c; "F" nickel shot or ingots, for addition to cast iron, 56.50c. Prices include import duty.

Mercury: Open market, spot, New York, \$217-220, nominal, per 76-lb flask.

Beryllium-Copper: 3.75-4.25% Be, \$1.595 per lb of alloy, f.o.b. Reading, Pa.

Cadmium: "Regular" straight or flat forms, \$1.75-\$2 del; special or patented shapes \$2.15.

Cobalt: 97.99%, \$2.40 per lb for 500 lb (kegs); \$2.42 per lb for 100 lb (case); \$2.47 per lb under 100 lb.

Gold: U. S. Treasury, \$35 per ounce.

Silver: Open market, New York 83.25c per oz.

Platinum: \$90-\$93 per ounce from refineries.

Palladium: \$23-\$24 per Troy ounce.

Iridium: \$175-\$185 per Troy ounce.

Titanium (sponge form): \$5 per pound.

Rolled, Drawn, Extruded Products
COPPER AND BRASS

(Ceiling prices, cents per pound, f.o.b. mill, effective July 1, 1952)

Sheet: Copper 45.52; yellow brass 40.17; commercial bronze, 95% 45.15; 90% 44.38; red brass, 85% 43.10; 80% 42.34; best quality, 41.35; nickel silver, 18%, 55.08; phosphor-bronze grade A, 5% 64.71.

Rod: Copper, hot-rolled, 41.37; cold-drawn 42.82; yellow brass free cutting, 33.85; commercial bronze 95% 44.84; 90% 44.07; red brass 85%, 42.79; 80%, 42.03.

Seamless Tubing: Copper 45.56; yellow brass 43.18; commercial bronze, 90%, 47.04; red brass, 85%, 46.01.

Wire: Yellow brass 40.46; commercial bronze, 95%, 45.44; 90%, 44.67; red brass, 85%, 43.39; 80%, 42.63; best quality brass, 41.64.

(Base prices, effective July 1, 1952)

Copper Wire: Bare, soft, f.o.b. eastern mills, 100,000 lb. lots, 32.75c; 30,000 lb lots, 32.92c; l.c.l., 33.42. Weatherproof, 100,000 lb, 33.60c; 30,000 lb, 33.85c; l.c.l., 34.35. Magnet wire del., 15,000 lb or more, 38.75; l.c.l., 39.50c.

DAILY PRICE RECORD

	Copper	Lead	Zinc	Tin	Alu- minum	An- timony	Nickel	Silver
Jan. 7-8	24.50	14.30	13.00	121.50	20.00	34.50	56.50	83.25
Jan. 2-6	24.50	14.55	13.00	121.50	20.00	34.50	56.50	83.25
1952								
Dec. 30-31	24.50	14.55	12.50	121.50	20.00	34.50	56.50	83.25
Dec. 29	24.50	14.30	12.50	121.50	20.00	34.50	56.50	83.25
Dec. 22-27	24.50	14.05	12.50	121.50	20.00	34.50	56.50	82.25
Dec. 1-20	24.50	13.80	12.50	121.50	20.00	34.50	56.50	83.25
Dec. Avg.	24.50	13.925	12.50	121.50	20.00	34.50	56.50	83.25
Nov. Avg.	24.50	13.965	12.50	121.50	20.00	34.688	56.50	83.25
Oct. Avg.	24.50	14.228	12.50	121.50	20.00	39.00	56.50	83.25
Sept. Avg.	24.50	15.30	13.99	121.50	20.00	39.00	56.50	83.25
Aug. Avg.	24.50	15.80	14.067	121.50	19.923	39.00	56.50	83.25
July Avg.	24.50	15.80	15.00	121.50	19.00	39.00	56.50	82.885
June Avg.	24.50	15.06	15.74	121.50	19.00	39.00	56.50	82.75
Jan. 1952 Avg.	24.50	18.80	19.50	109.404	19.00	50.00	56.50	88.00
Jan. 1948 Avg.	21.50	14.825	11.056	94.00	15.00	33.00	33.75	74.625

NOTE: Copper: Electrolytic, del. Conn. Valley; Lead, common grade, del. St. Louis; Zinc, prime western, E. St. Louis; Tin, Straits, del. New York; Aluminum primary ingots, 99%, del.; Antimony, bulk f.o.b. Laredo, Tex.; Nickel, electrolytic cathodes, 99.9% base sizes at refinery unpacked. Silver, open market, New York. Prices, cents per pound; except silver, cents per ounce.

ALUMINUM

(30,000 lb base; freight allowed on 500 lb or more, but not in excess of rate applicable on 30,000 lb c.l. orders. Effective Aug. 4, 1952.) Sheets and Circles: 2s and 3s mill finish c.l.

Thickness	Widths or Range	Diameters, Sheet	Flat	Colled	Sheet	Circle†	Colled
Inches	Inches	In., Inc.	In.	Base*	Base	Base	Base
0.249-0.136	12-48	31.6	...	...	...	...	...
0.135-0.096	12-48	32.1	...	...	...	...	...
0.095-0.077	12-48	32.8	30.6	34.9	...	...	...
0.076-0.061	12-48	33.4	30.8	35.1	...	...	...
0.060-0.048	12-48	33.7	31.0	35.4	...	...	...
0.047-0.038	12-48	34.1	31.3	35.7	...	...	...
0.037-0.020	12-48	34.5	31.7	36.3	...	...	...
0.023-0.019	12-36	35.7	32.7	37.5	...	...	...
0.018-0.017	12-36	36.4	33.3	38.4	...	...	...
0.016-0.015	12-36	37.3	34.0	39.5	...	...	...
0.014	12-24	38.3	35.0	40.8	...	...	...
0.013-0.012	12-24	39.3	35.7	41.7	...	...	...
0.011	12-24	40.3	36.8	43.3	...	...	...
0.010-0.0095	12-24	41.4	37.9	44.8	...	...	...
0.009-0.0085	12-24	42.6	39.1	46.6	...	...	...
0.008-0.0075	12-24	44.0	40.3	48.4	...	...	...
0.007	12-18	45.5	41.7	50.6	...	...	...
0.006	12-18	47.0	43.1	55.4	...	...	...

* Lengths 72 to 180 inches. † Maximum diameter, 26 inches.

Screw Machine Stock: 5000 lb and over. Dia. (in.) —Round— Hexagonal—

across flats R317-T4 R317-T4 17S-T4

0.125	54.6	...	...
0.156-0.0188	46.2	...	...
0.219-0.313	43.6	...	...
0.375	42.0	48.3	50.4
0.406	42.0	...	...
0.438	42.0	48.3	50.4
0.469	42.0	...	...
0.500	42.0	48.3	50.4
0.531	42.0	...	...
0.563	42.0	...	47.3
0.594	42.0	...	...
0.625	42.0	45.7	47.3
0.638	42.0	...	47.3
0.750-1.000	41.0	43.1	44.6
1.063	41.0	...	43.1
1.125-1.500	39.4	41.5	43.1
1.563	38.9	...	...
1.625	38.3	...	41.5
1.688-2.000	38.3	...	...

LEAD

(Prices to jobbers f.o.b. Buffalo, Cleveland, Pittsburgh) Sheets: Full rolls, 140 sq ft or more \$19.62 per cwt; add 50c cwt 100 sq ft to 140 sq ft. Pipe: Full coils \$19.75 per cwt. Traps and bends: List prices plus 43%.

ZINC

(Sheets 23.00c, f.o.b. mill, 20.00c-25.00c, f.o.b. mill. Ribbon zinc in coils, 20.00c-25.00c, f.o.b. mill, 36,000 lb and over. Plates, not over 12-in., 21.25c-21.75c; over 12-in., 21.25c-21.75c.

"A" NICKEL

(Base prices f.o.b. mill, effective Dec. 15, 1952) Sheets, cold-rolled 63.00c. Strip, cold-rolled 66.00c. Rods and shapes, 61.00c. Plates, 62.00c. Seamless tubes, 96.00c. Shot and blocks, 54.50c.

MONEL

(Base prices f.o.b. mill, effective Dec. 15, 1952) Sheets, cold-rolled 63.00c. Strip, cold-rolled 66.00c. Rods and shapes, 61.00c. Plates, 62.00c. Seamless tubes, 96.00c. Shot and blocks, 54.50c.

MAGNESIUM

Extruded Rounds 12 in. long, 1.31 in. in diameter, less than 23 lb, 55.00-62.00c; 25 to 99 lb, 45.00-52.00c; 100 lb to 5000 lb, 41.00c.

TITANIUM

(Prices per lb, 10,000 lb and over, f.o.b. mill) Sheets, \$15; sheared mill plate, \$12; strip, \$15; wire, \$10; forgings, \$6; hot-rolled and forged bars, \$6.

ALUMINUM SCRAP Ceiling Prices

(Base prices, cents per pound, less than 40,000 lb f.o.b. point of shipment)

Group I: No. 1 copper 19.25; No. 2 copper wire and mixed heavy 17.75; light copper 16.50; No. 1 borings 19.25; No. 2 borings 17.75; refinery brass, 17.00 per lb of dry weight for 50 to 60 per cent material and 17.25 per lb for over 60 per cent material.

Group II: No. 1 soft red brass solids 18.42; No. 1 composition borings 19.25 per lb of tin content plus 63 cents per lb of tin content.

Mixed brass borings 19.25 per pound of tin content plus 63 cents per lb of tin content.

Unlined red cans boxes 18.25; lined red cans boxes 17.25; cocks and faucets 16.00; brass screens 16.00; zincy bronze solids 16.25.

Plating Materials

Chromic Acid: 99.9% flakes, f.o.b. Philadelphia, carloads 27.00c; 5 tons and over 27.5c; 1 to 5 tons, 28.34c.

Copper Anodes: Base 2000 to 5000 lb; f.o.b. shipping point, freight allowed: Flat, rod, 38.34c; oval 37.84c.

Nickel Anodes: Rolled oval, carbonized, f.o.b. loads, 74.50c; 10,000 lb to 30,000 lb 75.50c; 100 to 500 lb, 79.50c; under 100 lb, 82.50c; f.o.b. Cleveland.

Nickel Chloride: 36.50c in 100 lb bags; 34c in lots of 300 lb through 10,000 lb; 32c over 10,000 lb, f.o.b. Cleveland, freight allowed on 300 lb or more.

Sodium Stannate: 25 lb cans only, less than 100 lb to consumers 56.7c; 100 or 354 drums only, 100 lb to 600 lb 71.60c; 700 to 2000 lb, 69.3c; 2000 to 9900 lb, 67.3c. Freight allowed east of Mississippi and north of Potomac rivers.

Zinc Cyanide: 100 lb drums, less than 100 lb drums 54.30c, 10 or more drums, 52.30c, f.o.b. Niagara Falls, N. Y.

Stannous Sulphate: 100 lb kegs or 400 lb bags less than 2000 lb \$1.11; more than 2000 lb \$1.09. Freight allowed east of Mississippi and north of Ohio and Potomac rivers.

Stannous Chloride (Anhydrous): In 400 lb bags, 98.5c; 100 lb kegs 99.5c. Freight allowed

Scrap Metals

Brass Mill Allowances

Ceiling prices in cents per pound for less than 20,000 lb, f.o.b. shipping point effective Jan. 26, 1951.

Clean Rod Heavy Ends Turnups

Copper 21.50 21.50 19.25

Yellow Brass 19.125 18.875 17.5

Commercial Bronze 20.50 20.25 19.1

90% 20.50 20.25 19.1

Red Brass 20.25 20.00 19.5

80% 20.125 19.875 19.5

Muntz metal 18.125 17.875 17.5

Nickel silver, 10% 21.50 21.25 10.7

Phos. Bronze, 5% 25.25 25.00 24.0

Copper Scrap Ceiling Prices

(Base prices, cents per pound, less than 40,000 lb f.o.b. point of shipment)

Group I: No. 1 copper 19.25; No. 2 copper wire and mixed heavy 17.75; light copper 16.50; No. 1 borings 19.25; No. 2 borings 17.75; refinery brass, 17.00 per lb of dry weight for 50 to 60 per cent material and 17.25 per lb for over 60 per cent material.

Group II: No. 1 soft red brass solids 18.42; No. 1 composition borings 19.25 per lb of tin content plus 63 cents per lb of tin content.

Mixed brass borings 19.25 per pound of tin content plus 63 cents per lb of tin content.

Unlined red cans boxes 18.25; lined red cans boxes 17.25; cocks and faucets 16.00; brass screens 16.00; zincy bronze solids 16.25.

Aluminum Scrap Ceiling Prices

(Cents per pound, f.o.b. point of shipment, less than 5000 lb)

Segregated plant scrap; 2s loads, copper 16.50; high grade borings and turnings, 8.75; No. 12 piston borings and turnings, 7.75.

Mixed plant scrap; Copper-free solids, 10.12; dual type, 9.00. Obsolete scrap; Pure cable, 10.00; sheet and sheet utensils, 7.25; d. castings and forgings, 7.75; clean pistons, 7.25; struts, 7.75; pistons with struts, 5.75.

DEALERS' BUYING PRICES

(Cents per pound, New York, in ton lots)

Lead: Heavy 10.75-11.25; battery plates 5.15;

Linotype and stereotype 12.50-13.00; etc.

Type 10.75-11.00; mixed babbitt 13.75-14.50.

Zinc: Old zinc, 5.50-6.00; new die cast scrap, 5.50-6.00; old die cast scrap, 4.00-4.50.

ELECTROMET Data Sheet

A Digest of the Production, Properties, and Uses of Steels and Other Metals

Published by Electro Metallurgical Company, a Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y. • In Canada: Electro Metallurgical Company of Canada, Limited, Welland, Ontario

How CHROMIUM and TUNGSTEN Increase Strength of High-Temperature Alloys

The aircraft field has served as an important "proving ground" for the high-temperature alloys that have been developed for gas turbines required to operate at elevated temperatures. However, these alloys are now demonstrating their superior properties for other primary power applications, including gas turbines to operate electrical generators for stationary or motive power.

While there are literally dozens of different alloys available for high-temperature use, most of them contain the alloying elements chromium and tungsten for the express purpose of enhancing resistance to scaling and increasing hardness and strength at elevated temperatures. The amount used is generally determined by the stresses and

temperatures expected in service. Other alloying metals may also be added for special purposes — such as columbium, manganese, silicon, and titanium.

Chromium and Tungsten as Strength-Builders

Even small amounts of chromium and tungsten are effective in increasing the strength of high-temperature alloys. An important consideration is, of course, the exposure time—particularly when operating temperatures go above 1200 degrees Fahrenheit. Although the major role of chromium is to prevent scaling, it has been found that chromium, as well as tungsten, also helps the alloys to maintain their strength when they are exposed to high temperatures for long periods of time.

In addition to chromium and tungsten, the combination of other alloying metals present will likewise influence the strength of the alloys. Heat-treatment, too, will influence the properties of these materials. However, in obtaining the higher ranges of strength needed at extremely high temperatures, chromium and tungsten are essential.

Where High-Temperature Alloys Are Used

Special high-temperature alloys containing chromium and tungsten are being used for the construction of gas turbines that power railroad

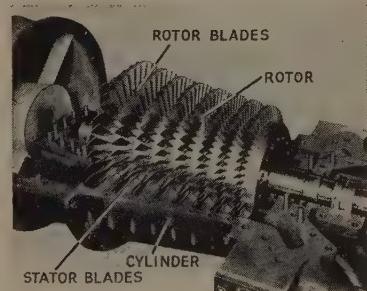


Fig. 2—Rotor and stator blades in this locomotive-type gas turbine are precision-cast of an alloy containing about 24 per cent chromium and 6 per cent tungsten. The rotor body and cylinder housing are forged from an alloy containing about 19 per cent chromium and 1.2 per cent tungsten.

locomotives, ships, airplanes, and electric generating plants. Some typical parts made of these alloys are rotors, turbine blades, nozzle vanes, ducts, and housings. These parts are exposed to temperatures of from 1200 to 1500 degrees Fahrenheit.

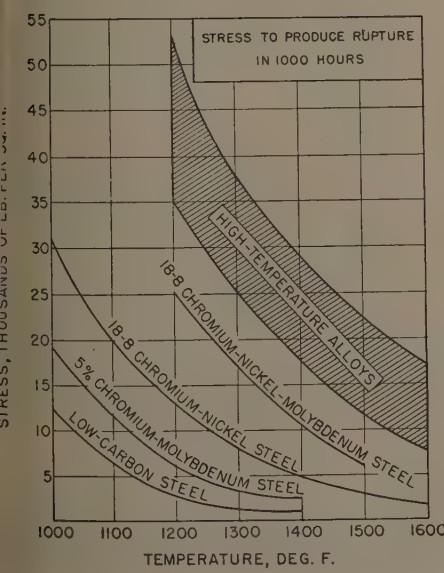
If You Need Technical Help

Those producing high-temperature alloys who wish technical help in the selection of alloying metals will find ELECTROMET's metallurgists glad to cooperate. In addition to chromium and tungsten alloys, ELECTROMET also produces ferro-alloys of columbium, manganese, silicon, and titanium for use in making high-temperature alloys. If you wish further information about the properties and uses of these alloys, write to the nearest ELECTROMET office.



Ask for our booklet "Electromet Products and Service." It describes over 50 metals and alloys produced by ELECTROMET and tells of the unique technical service offered to the metal industries.

Fig. 1—Here is the average range of strength of various high-temperature alloys compared with other metals.



The term "Electromet" is a registered trademark of Union Carbide and Carbon Corporation.

Semifinished Steel . . .

Semifinished Prices, Page 99

Birmingham — Tennessee Coal & Iron Division, U. S. Steel Co., produced at an average rate of 106 per cent of capacity last year with ingot output 2.7 million tons and shipments of finished products totaling about 2 million tons. No sign of weakening demand is noticeable. Customers' requirements continue strong. Capacity of Tennessee Division's Fairfield sheet mill is being increased, a third continuous galvanizing line being installed. The division has put its two new open-hearth furnaces at Fairfield into operation. The other 10 are being enlarged.

Detroit — Ford Motor Co. has taken its No. 10 open-hearth furnace out of operation for complete rebuilding. The work will require five to six weeks.

Sheets, Strip . . .

Sheet and Strip Prices, Page 99 & 100

Cleveland — Consumer pressure for sheets and strip continues unabated. If anything, it is stronger than a month ago. First quarter books are filled and some tonnage tickets for the period will die unplaced unless government control authorizes their validation for cashing in second quarter.

There will be substantial carry-over from first to second quarter since only March output is available for orders placed specifically for that period. January and February production is committed against carry-over from fourth quarter, 1952. Many first quarter tickets accepted by the mills, consequently, can't possibly be honored before second quarter.

Sheetmakers are booking second quarter tonnage cautiously. Most are booking specialties, such as silicon and coated sheets, for the entire period, but they are accepting hot and cold-rolled sheet orders generally on a month-to-month basis. At least one leading maker has deferred opening its second quarter books on hot and cold-rolled until it can better appraise its supply position.

Over-all, supply appears just about as tight as at any time the past year or so. Capacity operations are indicated into last half of the year, some market observers unreservedly predicting high-level demand through the entire year. Even hot strip, reported in easier supply at some points, is on the tight list in this area. Lifting of the 30-day inventory limitation on consumer stocks, now fixed at 45 days, will serve to increase pressure on the market.

Boston — Flat-rolled steel carryover entering second quarter will be smaller due largely to conservative booking through January-March. Demand for sheets is so heavy difficulty may be experienced in placing all tickets. A considerable number for first quarter are unplaced. Easing in galvanized, notably in secondary channels, continues. Production schedules on strip are not as badly clogged as on sheets. There is a good deal of sheet slitting to strip widths and more distributors and consumers are installing slitting equipment.

New York — Producers of hot and cold-rolled sheets anticipate an

active second quarter. Tonnage may be a little easier by virtue of increased capacity, but actual volume rolled will be as heavy as in first quarter. They expect substantial business in silicon sheets and stainless, among other specialties.

Philadelphia — Demand for all major grades of carbon and coated sheets continues strong, exceeding trade expectations. Same is true of some specialties, such as silicon sheets, enameling stock and chrome nickel grades. These latter are under close government control. Producers anticipate active operations throughout first half.

Pittsburgh — Sheet and strip will be produced at capacity during second quarter. At the moment, automotive users aren't getting all the tonnage they want, and are feeling the pinch.

Chicago — Sheetmakers have opened second quarter order books and designated quotas to customers. Most consumers were disappointed, expecting more than they got. Judging by their commitments mills are assured capacity operations through midyear.

Birmingham — Sheet supply continues tight and no marked change in conditions is in prospect for the near future.

Reinforcing Bars . . .

Reinforcing Bar Prices, Page 99

Atlanta — Fabrication of reinforcing bars is being resumed by Atlantic Steel Co. Producer of deformed reinforcing bars for over 25 years, the company was active as a fabricator until 1942.

Seattle — Rolling mill operations are again at levels permitted under power conservation regulations. Northwest Steel Rolling Mills Inc. resumed after two weeks suspension for overhaul. Furnaces operated throughout the shutdown.

Wire . . .

Wire Prices, Page 101

Boston — Routine wire orders are being booked for second quarter, with first quarter books filled except for some fine wire specialties. Textile requirements are in this latter category equipment builders living off inventory. All finished wire on order for automobile assembly is under pressure; also spring wire for upholstery. There will be more heading wire or rods for screw manufacturers next quarter. This month will see most mills clear fourth quarter carryover. Manufacturers of music wire can ship a larger range of sizes and grades from stock.

Philadelphia — Manufacturers wire is in tight supply but continued lag in demand for merchant wire products, notably nails, is in evidence.

Pittsburgh — Wire products are moving sluggishly. Most popular item is galvanized wire. Order books for first quarter are filled.

Cleveland — While merchant wire products demand has not been as robust in recent weeks as that for other steel products, some sellers sense a slight pickup since the first of the year. Current dullness in the merchant items, fencing, nails, etc., is, in large measure, due to seasonal factors. Buying on farm account is

sluggish at this time of the year, building operations are slow. On the other hand, manufacturers' wires in strong demand and makers anticipate no letup of any consequence in requirements in the months immediately ahead.

Chicago — Merchant wire products continue to show the easier trend which developed recently. It appears most shortages have evaporated. In farm items, such as fencing and barbed wire, this is the slack season.

Structural Shapes . . .

Structural Shape Prices, Page 99

Pittsburgh — Strong demand is expected through second quarter. While military needs remain unknown, sufficient construction projects are pending upon this district for structures to assure good demand for the first six months of the year probably through third quarter. Best talk this week among structural producers is the San Francisco bridge, San Francisco, Calif. Principal bidders were American Bridge Division, U. S. Steel Corp. and Bethlehem Steel Corp. They bid \$28 million and \$20 million respectively. The concerns low bidder, from the West Coast who says he can do it for about \$20-\$21 million. Meanwhile suit has been entered to stop building any bridge. Idea is a dike-covering by a bridge, and a fresh water reservoir.

Boston — Mild flurry in fabrication of structural steel for industrial expansion includes 650 tons for a new plant for the Simplex Wire & Cable Co., Cambridge, Mass. At Newington, N. H., pier sheds take 2300 tons. Increase in structural steel allocations for second quarter finds most late shops booked solidly through the period. More plain material is sight earlier for the smaller shops than for the larger fabricators. While improvement in steel supply ahead, notably for highways and bridges, competition for building contracts is growing with some pressure prices in place. For a pier shed, Flint River, Mass., involving 5500 tons, the low quotation on steel erected was 13.04c per pound.

Second quarter steel allotment for highways, including bridges, is 37,500 tons compared with 305,000 tons in first quarter.

New York — Structural fabricators continue to have difficulty obtaining shapes. Mills, they say, are behind two or three weeks on delivery promises on the bulk of tonnage, although in many instances, are behind more than that on certain necessary sizes and specifications.

Philadelphia — Fabricators look for a tough first quarter in steel procurement but anticipate some improvement the following quarter. However, they expect supply to continue to fall short of needs. Much new work is in prospect in the way of bridge, public projects, and miscellaneous commercial construction.

Structural steel allotments for second quarter have been stepped up to 1,692,785 tons to permit more tonnage for highways, electric power projects and certain other types of building, and for railroad equipment and barges. However, these allotments exceed estimated supply, while

An Open Letter * of Thanks to V.I.P.

H. D. PAXSON, PRESIDENT
THEDA L. PAXSON SEC.-TREAS.

PHONE: 3486
P. O. Box 214

PAXSON MACHINE COMPANY

Engineers and Builders of
COLD-ROLLED STRIP-MILL EQUIPMENT
Specializing in Slitting Lines
SALEM, OHIO

Users of Paxson Equipment
Coast to Coast
U. S. A.

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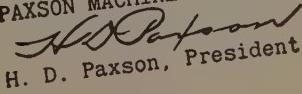
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for next quarter is 1,415,000 tons. Structural fabricators will be permitted to revalidate first quarter tickets for second quarter, an exception to the general rule.

San Francisco — Fabricators have had some of their jobs thrown into arrears because of lack of structural shapes. Many complain their CMP tickets are no more than a hunting license and the "hunt" is far from good.

Seattle — Fabricators begin the new year with large order backlog. Many major projects will be placed in first quarter.

Tubular Goods . . .

Tubular Goods Prices, Page 103

Cleveland — Tight supply conditions in tubular goods are not expected to ease much before third quarter. While the mills are pushing out tonnage in capacity volume, they are not yet able to catch up with demand. Jobbers are getting in tonnage regularly but not in the volume they desire. Butt-weld receipts are reported improving, but seamless is said to be in as tight supply as ever. Jobbers are unable to place all of their second quarter seamless allotments. Welded tubing is reported fairly plentiful. Pipe jobbers here report they are still experiencing above normal demand, this, in part, being attributed to inquiries from outside their usual marketing areas, reflecting the tight supply conditions in tubular goods throughout the country.

Galvanized pipe discounts have been lowered to reflect the recent increase in the price of zinc from 12.50 cents to 13 cents per pound.

Boston — Butt-weld pipe stocks of distributors are better balanced. Some sellers are curtailing on late first quarter allotments. With most, sales for some weeks have been below quotas. Light wall electric welded tubing is in ample supply, including stainless and alloy. Seamless is tightest of the tubular products. Warehouses take all tonnage allotted, notably 12-inch and under, and direct shipment openings are sold through first quarter.

New York — Reflecting the increase in zinc prices, United States Steel Export Co., this city, revised its price schedule on galvanized pipe, tubes and wire. Base prices, including freight to New York, Philadelphia and Baltimore, effective with shipments from producing mills Jan. 3, are:

American Standard Pipe, T & C, galvanized: Butt-weld, 2½ and 3 in., 16.65 per cent discount; seamless, 2 in., 1.15 per cent discount; 2½ in. and 3 in., 3.15 per cent discount; 3½ in. and 4 in., 5.15 per cent discount; 5 in. and 6 in., 9.90 per cent discount.

English gas tubes, galvanized: butt-weld, 2½ in. and 3 in., 18.55 per cent discount.

Galvanized plain wire: \$6.695 per 100 lb.

Philadelphia — Pipe jobbers are pressing the mills for tonnage as shipments continue to fall short of demands.

Seattle — Municipal stock requirements feature the cast iron pipe market. Seattle opened bids Jan. 7 for about 300 tons. Another project, in-

volving 175 tons, was awarded by the contractor.

Fasteners . . .

Bolt, Nut, Rivet Prices, Page 103

New York — While bolt and nut producers are booked well ahead on the larger sizes, especially those required in the construction field, they report an easing in their position on fasteners for manufacturing assemblies. Some can make shipments within six weeks on these latter. Export demand is off compared with several months ago, due to stronger competition of European manufacturers, especially France and Belgium. Actually foreign makers are competing to an increasing degree for domestic business along the eastern seaboard, with prices ranging anywhere from 5 to 10 per cent under domestic levels. Foreign deliveries range around 8 to 10 weeks and on some limited sizes of bolts and nuts, shipments can be made from stock on this side.

Plates . . .

Plate Prices, Page 99

Philadelphia — Some commercial holders of fourth quarter tickets have been unable to cash them in, although they were good for rollings through February. Also, a large number of first quarter tickets held by civilian consumers will prove worthless as producers have practically one month, March, in which to do anything with them. They cannot be revalidated for rolling beyond the first quarter, except possibly in connection with some structural activity.

Boston — Walsh-Holyoke Steam Boiler Works will fabricate 9000 tons of electric welded steel pipe in a wide range of sizes for the Atomic Energy Commission. Work will be done at South Portland, Me. at a shipyard where a fabricating shed is being renovated and re-equipped at a cost of \$1 million. Both pipe and fittings will be machined and nickel-plated, bringing the total pipe contract to approximately \$10 million.

Plate mill books are filling for second quarter where tickets are available for the heavier and wider sizes. Also sheared plate capacity is scheduled more promptly. Only narrow and lighter gage strip-mill plates are improving as regards supply.

New York — Plate demand is strong for many lines of processing equipment, notably electrical equipment, and shipbuilding requirements are in excess of supply. However, there is a leveling off in demand for plates for boilers, reflecting the fact most industrial construction in this area is past peak. Chemical requirements are not too pressing at the moment. Over-all demand though in this district is highly active and local sellers see little easing for some weeks.

Pittsburgh — Military demand remains high and a comfortable market is awaiting any increased tonnage available.

Birmingham — Plate users are seeking more tonnage but they are not meeting with much success. Heavy gage plates are extremely scarce.

Seattle — Largest plate contract pending totals 6000 tons for the Han-

ford works expansion for which Kaiser engineers will receive bids Jan. 14. Several important fuel storage jobs are pending for military bases in Washington state. Plating continue scarce but delivery on rail orders from Geneva, Utah, is now scheduled at 90 days while structures from this works require an average of 120 days.

Steel Bars . . .

Bar Prices, Page 99

New York — Most leading carbon bar sellers are proceeding cautiously in accepting tonnage for second quarter. Some are accepting nothing beyond April. In the main, allotments to commercial consumers are about the same level as those in the current quarter. Meanwhile, various producers are turning down requests for considerable tonnage covered by first quarter tickets, as they have to devote the bulk of their January and February production to tonnage covered by fourth quarter tickets, leaving them only March to handle first quarter ticket business.

Boston — Carbon and alloy bars lead other finished steel products in direct defense consumption. Additional contracts have been placed for shells and fuzes on which peak production will not be reached for some weeks. With aircraft included, together with indirect components, antifriction bearings for instance, total bar tonnage entering into extended armament contracts is impressive. This will tend to restrict commercial volume in second quarter though slightly more tonnage is in sight in small carbon sizes, notably from converters.

Philadelphia — A number of hot-rolled carbon bar producers will have a substantial carryover at end of this quarter. On certain sizes the overflow may amount to as much as one month. Greatest jam is in sizes ranging from 1½ inches up.

Pittsburgh — Bar mills in the district anticipate a strong second quarter. Current orders indicate users are optimistic about their business for the period. Military demand is making inroads on bar availability, especially quality bars in the larger sizes and this will be felt during the second quarter.

Cleveland — Except for the smaller sizes, bars continue in just as tight supply position as ever. This reflects the steady pressure of military and defense demand on the market. All bars are not in as short supply as some time back, some producers having open space in late second quarter schedules. Automotive and other civilian goods makers are pressuring for tonnage but are limited in placements to allotment tickets.

Chicago — Demand for bars, except sizes under 1-inch diameter, shows signs of abating. Producers are assured capacity output so far as they can see into the future.

Iron Ore . . .

Iron Ore Prices, Page 105

New York — Reports received here to the effect Canadian iron ore production has reached the point where it is about equal to the country's current requirements. Un-

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SOUTHBRIDGE, MASSACHUSETTS • BRANCHES IN PRINCIPAL CITIES

recently the Canadian industry was dependent almost exclusively on imported ores. Within a few years, the combined output of iron ore from Steep Rock, Michipicoten, eastern Ontario, Quebec, Labrador and Newfoundland is expected to greatly exceed Canadian needs.

Warehouse . . .

Warehouse Prices, Page 105

Chicago—Warehouses are gaining inventory-wise but it isn't enough to measure accurately. Demand holds steady on all products in tight supply. Some of the recent inventory improvement stems from reduced consumption during the holiday season.

Boston—Except galvanized, supply of sheets is improved slightly in relation to demand. Distributors are getting more flat-rolled, but demand remains strong. Carbon plates and bars are in limited supply, notably in larger sizes. Structural also are scarce.

Philadelphia—Some leading warehouses report inventories about half of normal compared with 25 per cent at end of the steel strike. Despite this gain distributors are unable to make headway on some grades and sizes, tonnage moving out about as fast as received.

Pittsburgh—No semblance of a balanced inventory exists among warehouses here. Receipts of scarcer items are not in keeping with demand pressure. Heavy plates, large diameter bars and bar shapes are the items most sought with structural following close behind.

Cleveland—District warehouses are in receipt of a heavy volume of inquiries. Demand is well diversified and although distributors' stocks are larger and better balanced than some time back, they are still critically short of most wanted items, such as hot and cold-rolled sheets, wide flange structural, heavy plates and bars 2-inch and over. Strip and galvanized sheets are under less pressure, in the case of the latter this being attributed to the seasonal lull in building, furnace and similar work.

Birmingham—Warehousemen report stocks are gradually building up. Some products are moving to consumers almost as quickly as they are received from the mill.

Pig Iron . . .

Pig Iron Prices, Page 98

Boston—Through March the price of Mystic foundry pig iron will be \$59.50 per gross ton, Everett, Mass., furnace; malleable \$60, plus differentials for silicon, phosphorus and manganese. Prices are established on average costs during September-October, there being no production in November. The Everett furnace will be back in capacity production late this month.

New York—Movement of foundry pig iron is picking up but has not reached preholiday levels. Most district shops report little pickup in demand for castings. Only in basic iron does there appear to be any stringency.

Buffalo—Pig iron production here rebounded to 94 per cent of capacity as Republic Steel Corp. relighted its

third furnace which had been down for relining. Despite talk of a leveling off in merchant iron demand, sellers report no difficulty finding takers.

Philadelphia—Pig iron demand is recovering from the holiday lull but it is still far from brisk. Gray iron foundry operations remain sluggish. Soil pipe makers are operating at a low ebb and pressure pipe plants are less active than in months. Only in basic iron does there appear to be any real suggestion of tight supply. The Nancy furnace at the Fairless Works, Morrisville, Pa., went down about two weeks ago for repairs. It is expected to be idle another two weeks.

Pittsburgh—After the holiday lag, foundries in the district are more active and expect brisker business during early part of this year.

Cleveland—Foundry operations are recovering from the holiday lull but no appreciable increase in demand pressure for merchant iron is noted. Sentiment among the foundrymen is somewhat improved and with the government limitation on inventories now raised to 60 days as against 30 formerly, merchant sellers anticipate some pickup in demand. Since the furnaces now are disposing of all their production without difficulty any marked expansion in demand would quickly tighten up now relatively balanced supply in the merchant iron market.

Chicago—Demand for gray iron castings continues the mild improvement noted late last year. Foundry melt, however, has not increased to the point where there is any strain on pig iron supply.

Birmingham—Some additional pig iron tonnage is available from time to time, reflecting, to some extent, slower production of cast iron pipe at some plants and a not too busy foundry industry.

Scrap . . .

Scrap Prices, Page 106

Philadelphia—District steel mills are in fairly comfortable position on scrap. However, they have been favored by good weather and should severe storms be experienced some consumers would soon be in a bad position, as their inventories at most do not exceed three weeks' supply. Prices on steel grades continue at ceiling. Cast scrap is weak with only one major grade, heavy breakable, holding at ceiling.

Buffalo—New business and lifting of the embargo on shipments to a leading mill got the scrap market off to a fast start in the new year. Orders at ceiling level for approximately 20,000 tons of steelmaking grades were placed by a leading buyer. Dealers accumulated upward of 15,000 tons during the embargo.

Pittsburgh—No immediate upsurge is anticipated in the scrap market in the Pittsburgh district. Aside from electric furnace grades, mills aren't buying heavily. Of course, no good scrap is going begging, but there is no great amount available. Cast grades are a drug on the market.

Cleveland—The scrap market is holding on even keel with the mills taking shipments steadily though on a restricted basis. More selectivity in acceptances is in evidence. Steelmaking grades are moving at the full

ceilings and substantial purchases the Pittsburgh and Chicago areas since the opening of the year at \$100 a ton have served to give additional support to the market despite the fact mill stocks are comfortable. The cast market continues soft price-wise although a firming tendency is reported by some dealers and brokers in step with the pickup in foundry operations following the holiday lull.

Chicago—Scrap market activity has carried into the new year with about the same tone that existed before year-end. Consumption of steelmaking grades holds at capacity but receipts better than match tonnage. The last week inclement weather restricted collections, preparation and shipments, but not seriously. Some cast grades have slipped further in price.

Birmingham—Renewed activity is noted in the scrap market. The district's largest user again is in the market for minimum shipments of 80,000 pounds. Cast grades, except for No. 1 cupola, remain largely without takers.

San Francisco—Scrap is moving satisfactorily. Over the holidays deliveries were not equal to the market. Prices on steelmaking grades have not changed recently. No. 1 cupola cast is holding at \$44 delivered though one steel consumer is paying \$40, plus a maximum of \$2.50 a ton freight.

Seattle—The largest scrap buyer in this market announces it is paying \$2 to \$3 under ceiling, depending on point of origin and freight cost. This is the first time in months less than top levels prevail in this area for heavy melting steel. Current price range quoted is \$32 to \$34. Cast iron is generally \$10 under ceiling, at about \$31. Supply is ample. Motor blocks are quoted \$31 to

Canada . . .

Toronto—Algoma Steel Corp. will increase capital expenditures on plant and equipment by \$10 million bringing total outlay for its expansion program to be completed by end of this year to \$50 million.

Included in expansion at Sault Ste. Marie, is a 25-ft. hearth blast furnace which will increase pig iron capacity to 1,280,000 tons. Steel ingot capacity will be boosted to 1,240,000 tons annually, and rolling capacity of the blooming mill has been increased to handle all ingot output.

The new bar and strip mill add 250,000 tons capacity for finished products. Capacity of the rail and structural mill has been increased to 60,000 tons a year, and its production broadened. Coke oven capacity will be raised to 1,340,000 annually. Sintering unit of 400,000 tons capacity has been installed.

Subsidiary companies of Algoma also are undergoing expansion. Canadian Furnace Co., Port Colborne, blast furnace capacity to produce merchant iron is being increased by 50,000 tons to 275,000 tons. Sintering capacity at Algoma Ore Properties is being raised 158,000 tons to 232,000 tons.

Toronto—With increased domestic production and betterment in imports from the United States, there is some easing in Canadian iron and steel supply. Further easing is indi-

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cated as new production units come into operation. Shortages, however, are expected in some lines until end of second quarter. Cold-rolled and galvanized sheet supplies are not likely to ease before midyear.

European mills are seen making a determined effort to retain their grip on the Canadian market. Some of these foreign producers reduced prices on bars, beams, channels and plates for Canadian delivery. The new prices, it is said, will make European steel more competitive with that from the U. S. when St. Lawrence river navigation opens in spring.

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

31,000 tons, new Mid-America home office, Prudential Insurance Co., Chicago, to American Bridge Division, United States Steel Corp.
 3000 tons, state thruway bridges in Seneca and Cayuga counties, New York, to American Bridge Co., Pittsburgh.
 2200 tons, office building, Diesel Construction Co., Fifth avenue at 48th street, New York, to Harris Structural Steel Co., that city.
 850 tons, Anacostia bridge, Department of Interior, Washington, through Charles Tompkins, to Harris Structural Steel Co., New York.
 650 tons, plant, Simplex Wire & Cable Co., Newington, N. H., to Bancroft & Martin Rolling Mills Co., South Portland, Me.
 360 tons, store and warehouse, Logan Square Inc., Norristown, Pa., to Bethlehem Steel Co., Bethlehem, Pa.
 250 tons, Junior High School No. 57, Brooklyn, N. Y., to Schacht Steel Construction Co., New York.
 230 tons, Washington state Nisqually river bridge, to Poole, McGonigle & Dick, Portland, Oreg.; also 40 tons reinforcing to

James English, Tacoma, Wash.; David Nygren, Seattle, general contractor.
 150 tons, addition to Olympia Brewing Co.'s plant, Olympia, Wash., to Pacific Car & Foundry Co., Seattle.

STRUCTURAL STEEL PENDING

2100 tons, hangars, air base, Limestone, Me., bids to U. S. Engineer, Boston.
 2000 tons, estimated, 19-story office building for Charles & Milton A. Kimmelman, 555 Fifth Ave., New York; request for steel approved by National Production Authority.
 1750 tons, fabricated structural, pier No. 1, Boston & Albany terminal, East Boston, Mass., Raymond Concrete Pile Co., New York, low.
 1200 tons, Washington state twin truss span, Cowlitz river; bids to Olympia, Jan. 20.
 1100 tons, tank modification plant building, Chrysler Corp., Newark, Del., bids closed Jan. 6.
 648 tons, state highway bridge, Essex county, New Jersey; bids Jan. 27.
 326 tons, state highway bridge, Essex county, New Jersey; bids Jan. 23.
 300 tons, Rainier avenue viaduct, Seattle, state highway project; bids to Olympia, Wash., Jan. 13.
 300 tons, plant structure, B. F. Sturtevant Division, Westinghouse Electric Corp., Hyde Park district, Boston.
 145 tons, repairs, Little Pine Creek dam, General State Authority, Lycoming county, Pa., bids Jan. 14.

REINFORCING BARS . . .

REINFORCING BARS PLACED

175 tons, Ladd field dormitory, Alaska, to Truscon Steel Division, Republic Steel Corp., Portland, Oreg.; Baker & Ford, Bellingham, Wash., general contract \$1,136,196.
 103 tons, office building for 7th. & Marion Corp., Seattle, to Bethlehem Pacific Coast Steel Corp., that city.

REINFORCING BARS PENDING

1000 tons, reinforcing bars, pier No. 1, Boston

& Albany terminal, East Boston, Mass., Raymond Concrete Pile Co., New York, 850 tons, Rainier avenue viaduct, Seattle, state highway project; bids to Olympia, Jan. 20.
 815 tons, state highway bridge, Essex county, New Jersey; bids Jan. 27.

360 tons, Washington state highway project, Lewis county; bids to Olympia Jan. 20.
 182 tons, Washington state highway project, Clark, Spokane and Lewis counties; bids to Olympia, Jan. 13.
 107 tons, state highway bridge, Essex county, New Jersey; bids Jan. 23.
 100 tons, ammunition storage facilities, Kima, Washington, depot; bids in,

PLATES . . .

PLATES PLACED

60 tons, 100,000-gallon elevated water tank, Kirkland, Wash., to Chicago Bridge & Iron Co., Seattle.

PLATES PENDING

6000 tons, approximately, expansion at Hartford Works; bids to Kaiser Engineers, Oakland, Calif., Jan. 14.

PIPE . . .

CAST IRON PIPE PENDING

7000 tons, 14-inch, pier No. 1, Boston & Albany terminal, East Boston, Mass., Raymond Concrete Pile Co., New York, low.

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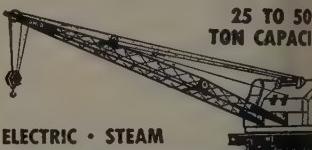
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Here and There in Metalworking . . .

CONSTRUCTION—ENTERPRISE—ORGANIZATIONAL CHANGES

American Radiator Modernizes Plant
Modernization program, costing in excess of \$1 million, at the Tiffin, O., plant of American Radiator & Standard Sanitary Corp. is virtually completed. Additions to the plant include a new cast shop, warehouse shipping area and enlarged and modernized plant offices. A new integrated furnace type heating boiler and mechanical coal handling system have been installed. Work is in progress on the repair and replacement of steel-kilns at the plant.

Vanadium-Alloys Expands in Canada
Vanadium-Alloys Steel Co., Latrobe, Pa., purchased Murray Steels of Toronto, Ont. Murray Steels has been the exclusive agency and distributor of Vanadium-Alloys products in Canada. Its acquisition is the first step in an expansion of the company's Canadian trade.

L Forms Supply Division
Jones & Laughlin Supply Co., Tulsa, Okla., formerly a wholly-owned subsidiary of Jones & Laughlin Steel Corp., Pittsburgh, is now a division of the parent corporation. Harry Elliott is general manager of the Supply Division. Canadian assets of Jones & Laughlin Supply Co. are being sold to the Jones & Laughlin Steel Sales Co. Ltd., Calgary, Alberta.

Dynematic Corp. Opens Branch
Dynematic Mfg. Co.'s subsidiary, Dynematic Corp., Kenosha, Wis., manufacturer of variable speed drives, opened a Philadelphia office at 4525 Broad St. Eugene Pohl is district manager.

Tresssteel Schedules Plant Opening
Tresssteel Corp. leased one of the former manufacturing buildings of Sheldon Axle Works in Wilkes-Barre, Pa. It will be renovated for start of production around the end of March. Raw material will come from Bethlehem Steel Co.

Ramsey Heads Aircraft Industries
Aircraft Industries Association of America Inc., Washington, elected John DeWitt C. Ramsey (Ret.) as president for 1953. Elected to serve the first six months as chairman of the board of governors is Mundy I. Hale, president, Republic Aviation Corp., Farmingdale, Long Island, N.Y.; for the second half of the year, Oliver P. Echols, chairman, Northrop Aircraft Inc., Hawthorne,

Calif. Rufus T. Amis Jr., president, Aero Design & Engineering Co., Bethany, Okla., was elected chairman, Utility Airplane Council of the association for 1953.

Shepard Niles Marks 50th Year

Shepard Niles Crane & Hoist Corp., Montour Falls, N.Y., is observing its 50th anniversary this year.

Meehanite Metal Moves Headquarters

Meehanite Metal Corp., New Rochelle, N.Y., moved into a building at 714 North Ave., that city. The quarters provide enlarged laboratory facilities for experimental melting, chemical and physical testing and photomicrographic studies.

Algoma Steel To Build Coke Ovens

Algoma Steel Corp., Ltd., Sault Ste. Marie, Ont., will build a battery of 57 coke ovens, lifting the firm's production capacity to 1,340,000 tons a year. This project is part of a \$10 million increase in the company's original \$40 million expansion program.

Offers To Lease Conveyors

Gravity and belt conveyors are available on lease under a new rental plan announced by James R. Sebastian, president, Rapids-Standard Co. Inc., Grand Rapids, Mich. This enables firms to install and use the equipment without making a major capital investment. The lease plan is currently available in Chicago, Philadelphia, New York, Buffalo and Grand Rapids.

Joy Mfg. Plans Expansion

Joy Mfg. Co. plans consolidation of three plants in Franklin, Pa. The mining machinery manufacturing firm will combine the plants in an expansion program.

Copperweld To Make Ledloy

Copperweld Steel Co., Glassport, Pa., was licensed by Inland Steel Co., Chicago, to produce Ledloy. Copperweld is installing equipment at its Warren, O., plant and expects to begin producing the new product by the second quarter. It will make stainless, alloy and electric furnace grades, adding lead to make the steel more machinable.

Seaporcel Metals Names Agents

Seaporcel Metals Inc., Long Island City, N.Y., fabricator of architectural and marine porcelain enamel products, appointed as its sales

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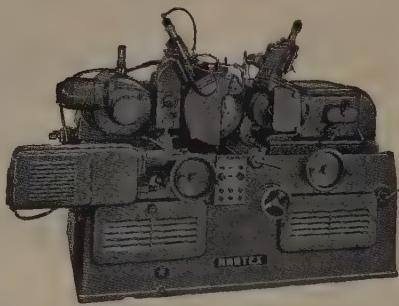
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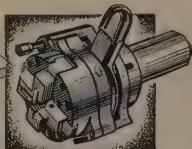
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... for any information about bearings and bearing metals, consult with the A. W. Cadman Mfg. Co., master makers of fine bearing metals since 1860.

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- Entirely Different Type of Alkaline Etching Compound for All Aluminum Alloys
- ELIMINATES SLUDGE AND CEMENT-LIKE SCALE FORMATIONS ON TANK AND COILS
- ASSURES UNIFORM ETCHED SURFACE WITH A DIFFUSED REFLECTION AND A FINE, EVEN APPEARANCE
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1. "Through the use of Diversey Aluminux we have been able to accomplish unequalled uniformity of the etch."

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3. "Aluminux is proving to be less expensive because it need be dumped and recharged only on two week intervals. All other materials previously used were dumped every week. The estimated saving here alone is about 45%."

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IF IT'S RIVETED YOU KNOW IT'S SAFE

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**THEORY AND PRACTICE
OF ROLLING STEEL**

By Wilhelm Tafel

312 Pages
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Covers every angle of the design,
construction and operation of the
steel rolling mill.

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—PERFORATED—
TO YOUR REQUIREMENTS
SEND US YOUR DWGS FOR PRICE

ALL SIZE AND SHAPE HOLES ALL METALS
ARCHITECTURAL GRILLES

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DIAMOND MFG. CO.

BOX 32

WYOMING, PA.

ts in their respective territories: ge Van & Co., St. Louis; Ed- R. Bass Corp., Columbia, S. C.; ng Sheet Metal & Roofing Co. Rochester, N. Y.

tronics Firm Opens Plant

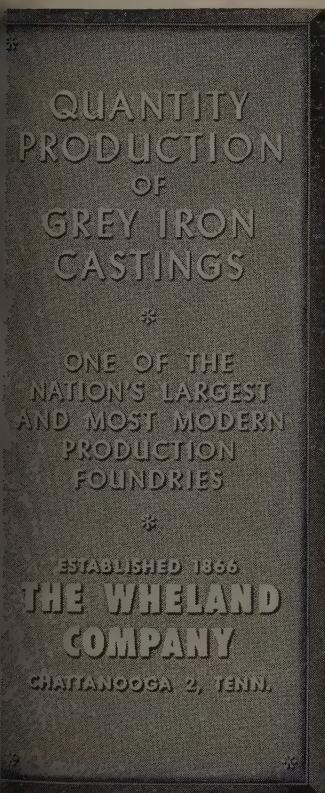
armers Engineering & Mfg. Co., maner and manufacturer of prod- for electronic communication and ro!, opened its plant at Irwin, which cost in excess of \$1 million.

loops To Build Oil Refinery

amloops Refinery Syndicate, loops, B. C., will build a \$3 mil- oil refinery in that city. Con- cation will begin early this year.



matter for what reason you come Baltimore, the chances are we're arrest to where you want to go.



Wood Commemorates Anniversary

Coincident with its 150th anniversary, R. D. Wood Co., Philadelphia, reissued a photographic book covering certain of the company's production divisions. The book is designed to give an informative picture of some of the company's facilities, methods and equipment, particularly as they relate to hydraulic press and valve manufacture.

Alloy Casting Institute Grows

As a result of the growth of Alloy Casting Institute, New York, reflecting the expanding activities of the high-alloy foundry industry, the office of executive vice president has been created by the institute. Ernest A. Schoefer, formerly executive secretary, has been elected to serve in the new position.

Business Machine Firm To Expand

International Business Machines Corp., New York, plans to erect a research center at its Poughkeepsie, N. Y., plant early next spring, to be completed before the end of 1954. This will provide centralized facilities for the company's widespread electronics research program.

Federal Electric To Build Plant

Plans for the \$1 million plant to be constructed in Scranton, Pa., for occupancy by Federal Electric Products Co. were approved by the superintendent of building inspection, that city. It is scheduled for occupancy next September. The company makes switch gear generators and transformer distribution panels.

Westinghouse Appoints Sales Agents

Electronic Tube Division, Westinghouse Electric Corp., Elmira, N. Y., appointed Edward G. Brierty and Raymond E. Warner as its sales representatives for the midwest sales region under the direction of R. N. Stoddard, regional sales manager in Chicago.

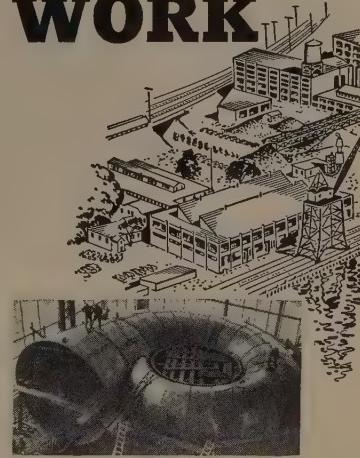
David Bogen Co. Moves Plant

David Bogen Co. Inc., manufacturer of sound systems, high fidelity reproduction equipment and intercommunications systems, completed removal of its plant facilities to new quarters at 29 Ninth Ave., New York 14.

Wyatt Metal Plans Expansion

Wyatt Metal & Boiler Works, Houston, manufacturer of refinery and other major industrial equipment, is planning an expansion of \$2 million or more. About \$1 million will be invested in expansion at the Eureka, Tex., plant and another

STEEL PLATE WORK



TURBINE CASINGS

and other heavy steel plate work are fabricated at Pusey-jones of Hot-Rolled, High-Strength, Low-Alloy Steel.

Every facility for large scale metal fabricating:

- Heavy plate shop equipment — Rolls — Shears — Bending furnaces. Stress relieving furnace 33'x18'x16' up to 2100°F. Machine shop for facing, turning, and boring. 50 ton capacity gray iron foundry. Deep-water transportation on one side, the Pennsylvania RR on the other. Talk to our development engineers.

Metals Fabrication Division
THE PUSEY AND JONES CORP.
506 Front St., Wilmington, Del.
Established 1848

PUSEYJONES

FOR SALE

2-TON HERROULT TILTING TYPE ELECTRIC STEEL FURNACE, side charge, inside dia. of shell 7'3", Transformer cap. 1000 to 1500 KVA at charge of 5000 to 6000#. Complete with 1500 KVA Transformer, 11000/2250 volts, 339 KVA Reactor, (3) Allis-Chalmers D.C. Generators with 7½ HP A.C. Motor 3/60/220-440, with extra head, carbon stick electrodes and heads, Serial #147, Electrode Control System installed new in 1947.

INDUSTRIAL PLANTS CORP.

90 W. Broadway BArclay 7-4185 N. Y. 7

FOR SALE at Warehouse Ceiling Prices or lower:

750 sheets—18 ga. 36" x 96"
HR Black Sheets
150 sheets—18 ga. 48" x 96"
HR Black Sheets
650 rolls—4" x 4" 12½/12½
Galvanized Reinforcing Wire
Mesh in rolls 5' x 150'
27,000 sq yds.—3.4# Bantam
Diamond Lathe
40,000 ft.—¾" Cold Formed
Channels
40,000 ft.—1½" Cold Formed
Channels

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POWER SHEAR mill type

108" x ¾" cold, or 1" hot.
Up and down cut. Weight 110 Ton.
New 1942—used little—like new.
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SHEETS—PLATE—BARS

24 ga.	36" x 96"	9 Sheets
22 ga.	36" x 96"	182 Sheets
19 ga.	36" x 96"	45 Sheets
19 ga.	44" x 120"	12 Sheets
16 ga.	44" x 120"	31 Sheets
13 ga.	36" x 110"	42 Sheets
13 ga.	36" x 120"	21 Sheets
13 ga.	44" x 120"	18 Sheets
12 ga.	48" x 144"	1 Sheet
11 ga.	48" x 144"	16 Sheets
3/16"	36" x 96"	7 Plates
3" Dia. Rd. Bars	394 ft. R.M.L.	
4" Dia. Rd. Bars	189 ft. R.M.L.	

MECHANICAL DRAFTSMEN

WANTED

Capable of detailing jigs and fixtures for welding and machining operations. Prefer men with desire to progress to supervisory capacity.

Various Company Benefits. Plant and Offices located in Chicago, Illinois. Our Employees know of this ad.

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NEW ACCOUNTS WANTED
MANUFACTURER'S SALES REPRESENTATIVE, TECHNICAL GRADUATE, WITH FAVORABLE BACKGROUND CONTACTING WELL ESTABLISHED CLIENTELE IN INDIA DESIRES ANOTHER VOLUME PRODUCTION LINE, ON COMMISSION BASIS. H.E.W. FRIENDLY RELATIONSHIP WITH BUYERS IN AUTOMOTIVE, ELECTRICAL, JET ENGINE AND OTHER INDUSTRIES. TRAVEL TWO MEN. PREFER STEEL AD METAL PRODUCTS. INDIANAPOLIS OFFICE ESTABLISHED 1920. REPLY BOX 631, STEEL, PENTON BLDG., CLEVELAND 13, OHIO.

Help Wanted

SALES REPRESENTATIVE WITH SOME ENGINEERING BACKGROUND AND FAMILIAR WITH STRUCTURAL STEEL FABRICATING AND ALLIED INDUSTRIES FOR MID-WEST TERRITORY. SALARY, EXPENSES AND COMMISSION. GIVE FULL INFORMATION—AGE AND QUALIFICATIONS. CORRESPONDENCE CONFIDENTIAL, WRITE BOX 625, STEEL, PENTON BLDG., CLEVELAND 13, OHIO.

Positions Wanted

PLANT MANAGER: M.I.T. GRADUATE WITH 25 years' experience in Plant Management, including Production planning, machine and tool loading, Material and tool control, quality control, purchasing, incentives, standard cost, variable budgets, overhead analysis and break-even charts, job evaluation, supervisory responsibility chart and labor relations. Capable administrator with excellent record. Write Box 632, STEEL, Penton Bldg., Cleveland 13, Ohio.

ATTENTION! Steel mills, foundries, brokers, dealers, etc. Ambitious young man, college degree—experienced in purchasing and selling scrap iron and steel for large well-known broker—now available to make money for you. Write Box 634, STEEL, Penton Bldg., Cleveland 13, Ohio.

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Unusual opportunity to direct 700 man plant, fabricating medium to heavy industrial products. Will report to President. Company located in desirable Eastern City and has had leading reputation for over 75 years.

\$25,000

Prefer experienced plant manager with minimum of 5 years in such products as industrial machinery, machine tools, construction or transportation equipment.

State briefly present position, compensation and age. Reply in confidence to Box 633, STEEL, Penton Bldg., Cleveland 13, Ohio.

WANTED

Assistant Rolling Mill Superintendent fully experienced on merchant bar mill and rolling of shapes. Must show experience. Please reply Box 626, STEEL, Penton Bldg., Cleveland 13, Ohio.

Wanted

STAINLESS STEEL SALESMEN

One of the country's largest distributors of Stainless Plate, circles and flanges has opening for inside and outside men with cars. Warehouse experience necessary. Salary and commission. Box 869, 1474 Bway, NYC.

FOR SALE

IMMEDIATE DELIVERY—WAREHOUSE STOCK

STAINLESS STEEL

SHEETS—PLATES

22 ga.	48" x 120"	21 Sheets	Type 347
19 ga.	30" x 120"	24 Sheets	Type 347
12 ga.	48" x 144"	31 Sheets	Type 321
10 ga.	36" x 96"	74 Sheets	Type 304
9 ga.	36" x 96"	104 Sheets	Type 321
9 ga.	48" x 120"	2 Sheets	Type 321
9 ga.	48" x 144"	2 Sheets	Type 321
7 ga.	36" x 96"	55 Plates	Type 321
3/8"	36" x 120"	2 Plates	Type 321
3/8"	35" x 64"	3 Plates	Type 321

JANDRU STEEL CORPORATION

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New York 54, New York

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One of the LARGEST STOCKS in the East. Immediate Delivery—Warehouse Stock. One pound to a Carload. Submit your inquiry.

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RECONDITIONED

STANDARD GAUGE FREIGHT CARS

Box, Double Sheathed, 50-Ton Capacity

Box, Single Sheathed, 50-Ton

Tank, 3,000-Gallon, High Pressure

Tank, 8,000-Gallon, Coiled and Non-Coiled

Gondolas, Composite, or All Steel 50-Ton and 70-Ton

Hoppers, Covered, All-Steel, 70-Ton

Hoppers, Twin, All-Steel, 50-Ton, Cross Dump

Hoppers, All-Steel, 70-Ton, Cross Dump

EXTRA LONG FLAT CARS

40 & 50-Ton Capacity, Length 70' and 74'

STANDARD GAUGE AIR DUMP CARS

Side Dump, 20-Yd., 40-Ton, Lift Door

End Dump, 20-Yd., 50-Ton Drop Door

Side Dump, 30-YD., 50-TON, DROP DOOR

CABOOSE CARS

Eight Wheel, Cupola Type

OTHER EQUIPMENT

Locomotive Cranes

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Railroad Track Scales

STANDARD GAUGE DIESEL-ELECTRIC ROAD SWITCHING LOCOMOTIVE

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6,000 Gallon

8,000 Gallon

10,000 Gallon



OPEN TIME 300 TON PRESS BRAKE

Will bend 20' x 1/4" to 6' x 3/4" PI.

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Box 68 Sta. "A" St. Joseph, Mo.

WORLD'S LARGEST INVENTORY

ELECTRIC EQUIPMENT CO.

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FOR SALE

-Used United Hydraulic Up Cut Shear, 36" Shear Knives with 8" stroke complete with pump, 75 HP Westinghouse Motor and Oil Storage Tank.

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For Sale
MACHINE, TOOL & MFG. PLANT
need a Southern outlet or profitable business in a warm climate? Near New Orleans and Gulf Coast. 8000 sq. ft. new building. Excellent equipment and transportation. Well staffed. Plenty of work. or sale by owner's widow. Brokers protected. Box 311, Poplarville, Miss. Write or brochure.

FOR SALE

200 Oxygen Cylinders, 24 Cu. Ft. Capacity

400 50 Lb. CO₂ Cylinders

800 40 Cu. Ft. Oxygen Cylinders, Round Bottom

Reconditioned and Tested

200 Foreign-Made Oxygen Cylinders, 250 Cu. Ft. Capacity, Round Bottom

100 D Size Nitrous Oxide, Filled

250 Acetylene Cylinders 12 x 36

350 50 Lb. Freon Cylinders

Available for Immediate Delivery

All above cylinders listed in excellent shape

2 OXYGEN PLANTS, Independent 02-B, new 600 cu. ft. per hour, 20-25 meters, complete less power unit.....\$7,500 each

1 ACETYLENE PLANT, Linde, used, 500 cu. ft. per hour, complete, ready to run \$6,500

1 OXYGEN PLANT, Air Products, 600 Cu. Ft. per hour, complete, liquid pump type, used

1 5-Ton Freon Unit, complete, compressor and condensing unit

DYE OXYGEN COMPANY, INC. MFGRS.

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FOR SALE

IMMEDIATE DELIVERY—WAREHOUSE STOCK

HOT ROLLED ROUNDS

1. 1/8" Dia.	2400 lbs	16. 1" x 2"	241 lbs
2. 3/16" Dia.	224 lbs	17. 2-1/4" x 2-1/2"	255 lbs
3. 1/4" Dia.	240 lbs	18. 2-1/4" x 2-3/4"	343 lbs
4. 5/16" Dia.	105 lbs	19. 2-1/4" x 4"	160 lbs
5. 3/8" Dia.	121 lbs	20. 2-1/2" x 4-1/16"	578 lbs

HOT ROLLED SQUARES

6. 1/2" Dia.	142 lbs	1. 5/8" x 5/8"	203 lbs
7. 3/4" Dia.	22 lbs	2. 7/8" x 7/8"	415 lbs
8. 13/16" Dia.	12 lbs	3. 1-1/8" x 1-1/8"	450 lbs
9. 15/16" Dia.	72 lbs	4. 1-1/4" x 1-1/4"	58 lbs
10. 1-1/16" Dia.	88 lbs	5. 1-3/8" x 1-3/8"	71 lbs
11. 1-3/16" Dia.	525 lbs	6. 1-3/4" x 1-3/4"	60 lbs
12. 1-1/4" Dia.	283 lbs	7. 2" x 2"	240 lbs
13. 1-3/8" Dia.	2761 lbs	8. 2-1/4" x 2-1/4"	277 lbs
14. 1-7/16" Dia.	76 lbs	9. 2-1/2" x 2-1/2"	172 lbs
15. 1-9/16" Dia.	1168 lbs	10. 3" x 3"	394 lbs
16. 2" Dia.	440 lbs	11. 3-9/16" x 3-9/16"	191 lbs

HOT ROLLED HEX

17. 2-1/8" Dia.	73 lbs	1. 5/8"	25 lbs
18. 2-1/4" Dia.	164 lbs	2. 7/8"	30 lbs
19. 2-7/16" Dia.	1663 lbs	3. 1-1/2"	810 lbs
20. 2-1/2" Dia.	5669 lbs	4. 1-5/8"	129 lbs
21. 2-3/4" Dia.	126 lbs	5. 1-3/4"	46 lbs

HOT ROLLED FLATS

1. 3/8"x1-1/8"	48 lbs	1. 1-7/16"	6,125 lbs
2. 3/8"x6"	111 lbs	2. 1-13/16"	100,151 lbs
3. 1/2"x6"	116 lbs	3. 1-15/16"	18,486 lbs
4. 1-1/2"x1-1/2"	90 lbs	4. 8-5/8"	9,578 lbs
5. 1-1/2"x1"	666 lbs		
6. 1-1/2"x5"	645 lbs		
7. 1-1/2"x1-1/4"	310 lbs		
8. 5/8"x4"	134 lbs		
9. 5/8"x5"	169 lbs		
10. 3/4"x1-1/4"	146 lbs		
11. 3/4"x2"	1105 lbs		
12. 3/4"x2-1/4"	481 lbs		
13. 3/4"x2-3/4"	1031 lbs		
14. 3/4"x1"	105 lbs		
15. 3/4"x2-1/2"	597 lbs		

ROUND BARS—HIGH CARBON

1. 2-1/16" Dia.	10,750 lbs
2. 2-3/8" Dia.	7,006 lbs
3. 2-13/16" Dia.	5,175 lbs
4. 2-7/8" Dia.	4,329 lbs

ROUND BARS—ALLOY

1. 1" Dia.—Aircraft	3,000 lbs
2. 2-5/16" Dia.	8,742 lbs

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reducing troubles?

Torrington Swaging Machines offer a means of reducing rod, wire and tubing that improves the quality of the material, gives a better surface, without waste of stock. Hammer blows (4000 a minute) speed production, and give the metal toughness and resiliency that cannot be obtained by any other method.



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Swager Department

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Makers of

TORRINGTON NEEDLE BEARINGS



EDWIN L. KARPICK



ROBERT F. HUBER

Karpick, Huber Move Up on STEEL Staff

In a move to further improve and expand STEEL's coverage of the metalworking world, Edwin L. Karpick was appointed engineering editor and Robert F. Huber was made

machine tool editor, effective Jan. 1, 1953. Mr. Karpick was formerly an associate editor and Mr. Huber was an assistant editor specializing in machine tool coverage.

\$1 million will be spent to improve property for "field operations." This latter project will include buildings, steel sheds and paved areas for field-erected work, for sand blasting and a plant for steel plate pickling processes.

Zenith Radio Plans Expansion

Zenith Radio Corp., Chicago, will build a \$3 million addition to its plant at 6001 Dickens, that city.

Burdett Oxygen Opens Plant

Burdett Oxygen Co., Youngstown, is producing oxygen, nitrogen and argon in its new \$500,000 plant. The company plans to double the size of the plant within two years. Bernard Schlund is plant superintendent; John R. Spain, plant manager.

Sightmaster Appoints Representative

Sightmaster Corp., New Rochelle, N. Y., appointed Merchant & Evans Co. as exclusive distributor for Chemalloy in the Philadelphia area to service aluminum fabricators and the welding trade.

Gunnison Offers Air Conditioning

Gunnison Homes Inc., United States Steel Corp.'s housing subsidiary, and Carrier Corp., producer of air conditioning equipment, signed a contract under which Carrier will provide cooling and heating units to Gunnison homes as optional equipment in all of the latter's home models to be

produced in 1953. This brings air conditioning to the mass home market.

Maysteel To Make Gleason Reels

Maysteel Products Inc., Milwaukee, organized a subsidiary, Gleason Reel Corp., which purchased assets including machinery, equipment, inventory and manufacturing rights for Gleason reels from J. L. Gleason & Co. Inc., Cambridge, Mass. Operations at the Cambridge plant will be continued. Maysteel is a manufacturer of metal specialty products.

Vacuum Sweeper Firm To Expand

Interstate Engineering Corp., El Segundo, Calif., is building a factory in Anaheim for the manufacture of vacuum sweepers. The company manufactures a variety of precision instruments and articles in addition to sweepers at its home plant in El Segundo.

Washing Machine Maker Moves Plant

Industrial Washing Machine Corp. moved its plant to 32 Main St., Matawan, N. J. The new quarters provide four times the floor space of the former plant. Production will be increased to meet growing demand for industrial washing machines which are used extensively in the metal cleaning and treating field and in a wide diversity of other applications. As exclusive agents for the manufacturer, Industrial Sy-

o. will continue to handle all matters through its New York, N. J., office.

To Build Steel Joist Plant

Expanded Steel Co., Youngstown, plans to build a plant and office in that city. The firm was invited in Ohio late last year and the steel joist business coming by Magnesium Co. of America Chicago, Ind.

American Electroneering Expands

American Electroneering Corp., Los Angeles, is constructing a factory at 2040 Colorado St., Santa Monica, Calif., to manufacture test equipment, electronics, and for fabrication of sheet metal.

Consolidated Engineering To Build

Consolidated Engineering Corp., Menlo Park, Calif., plans to erect a \$1 million plant in Rochester, N.Y. The plant will house the vacuum control business recently purchased from Distillation Products Division, a Kodak Co. Consolidated specializes in manufacture of auto-controls for industrial processes.

Heatz Appoints Distributor

Heatz Fans Division, American Machine & Metals Inc., East Moline, Ill., appointed H. S. McKenzie, Portland, Oreg., as its representative for Oregon and southern Washington.

Clean Products Buys Firm

Clean Products Inc., St. Paul, has used the Floor Sanding Machine on, Lincoln-Schlueter Floor Machinery Co., Chicago. Manufacturing operations are being transferred to a new plant.

Cockshutt Buys National Co-operative

Cockshutt Farm Equipment Ltd., Guelph, Ont., purchased the plant, equipment and manufacturing inventories of National Farm Machinery Cooperative Inc., Bellevue, O. For the seven years National was the principal distributor of Cockshutt products in the United States.

Expands in North Carolina

Ion Inc., Meadville, Pa., plans to build two plants in North Carolina. One will be located in Woodland and manufacture a limited product. The second plant will be located in Stanley and will be utilized for a weaving operation. Both plants are scheduled to begin operations in 1953. The company purchased all manufacturing facilities of Slidener Cord Co., Belmont, N.C.

"New Process"

Punches • Dies • Rivet Sets
Compression Riveter Dies

Made of highest standards and uniform quality thus insuring maximum service.

Since 1903

Large inventory of stock sizes of round punches and dies also rivet sets available for immediate shipment. Square, rectangular, oblong and elliptical shapes made to order.

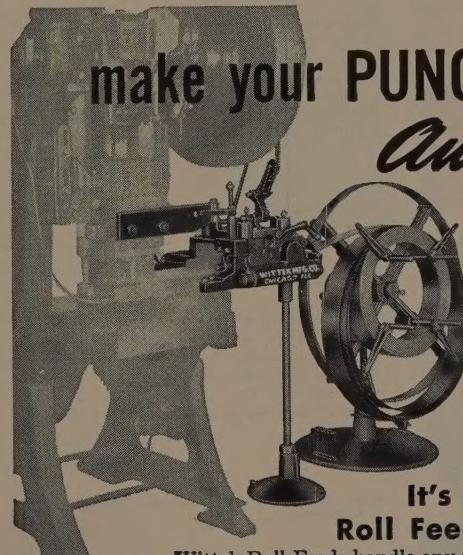
Write Dept. A
for Catalog 46



GEO. F. MARCHANT COMPANY

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make your PUNCH PRESSES
Automatic



It's Easy...with WITTEK
Roll Feeds and Reel Stands

Wittek Roll Feeds handle any type of coiled strip stock and are made in single roll, double roll, and compound types with straighteners, in models to feed in any of four directions. They are reliable and accurate with simple, quick adjustment of feed length. Standard sizes and models meet a wide variety of press size and capacity conditions.

Wittek Reel Stands facilitate handling coiled stock.

* Write for
full particulars

WITTEK Manufacturing Co.

4328 W. 24th Place, Chicago 23, Illinois

Automatic
ROLL FEEDS AND
REEL STANDS



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in an Instant**



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INSTRUMENT MOUNTING



SPINE TYPE



THIN TYPE



STANDARD

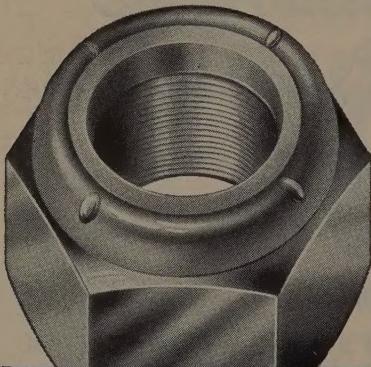
Faster assembly . . . no more failures of fasteners. GREER STOP NUTS hold firm against jolts, shocks, shimmy, wobbles . . . any vibration, any kind.

Bolt threads are gripped tightly . . . these famous nuts never work loose. Yet an ordinary hand wrench gives instant release. The tough, built-in GREERCOID collar does it . . . and seals against fluid leakage, too!

Study your fastener problem. Over 3000 types and sizes. Consult GREER. Proven on thousands of products. Meets gov't and military specifications.

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GREER STOP NUT CO.
2620 Flournoy, Chicago 12, Ill.



GREER Stop Nuts

Abrasive Products, Inc.	95	Lord Baltimore Hotel	121
Acadia Synthetic Products, Division Western Felt Works	6	Luria Brothers & Co., Inc.	107
Air Products, Inc.	88		
Ajax Electric Co., Inc.	11		
Allied Research Products, Inc.	84		
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Farval pays for itself quickly, many times over

...saving oiling labor
...saving lubricant
...saving bearing expense
...saving production time

With Farval you lubricate your machinery or equipment mechanically. Farval does the job quickly, dependably.

Any type of bearing surface, enclosed or open, can be Farval-lubricated with grease or oil. Measured amounts of lubricant are metered to each bearing through a unique Dualine Valve, delivered under pressure from a central reservoir, either by a manually operated pump or one actuated by an automatic time-clock mechanism.

Farval is not a new idea. It has proved its value in use over a 23-year period, protecting millions of bearings in every phase of industry—in manufacturing plants, mining and quarrying operations, transportation wherever there are bearings that have to be lubricated. Hundreds of installations on mills, presses, conveyors, elevators, engines and other industrial equipment provide proof of money saved. Savings take four forms:

Labor saving—Farval eliminates hand oilers. Minimal attention only is required—to inspect system, refill central reservoirs, etc.

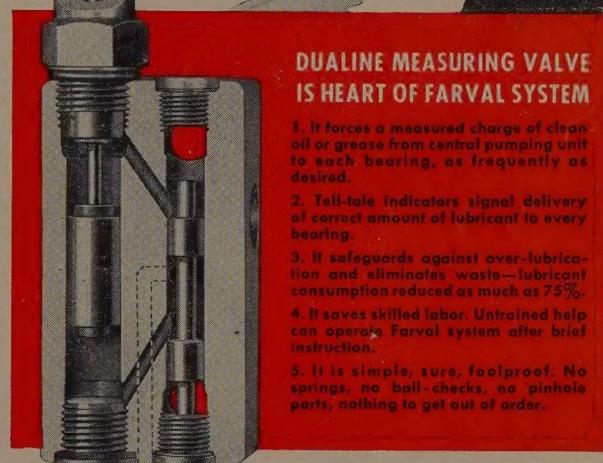
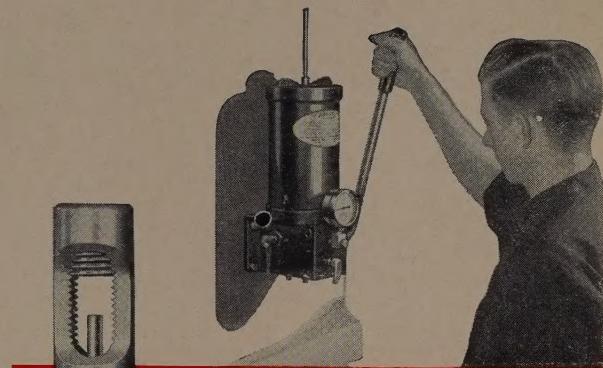
Lubricant saving—Correct amounts are used without waste, frequently reducing oil or grease consumption by as much as 75%.

Bearing expense saving—No more burned out or damaged bearings with Farval protection. Expense of replacement eliminated.

Production time saving—Farval lubricates while equipment is running. No shutting down to oil. No taking a machine out of production to repair or replace bearings. In short, savings are so positive that you soon recover the entire cost of a Farval system—and savings continue to divide dividends.

If you want figures on savings possible with Farval on the types of machines you operate, just write us. Tell us what equipment you have and ask for Bulletin 25. Farval Corporation, 3270 East 80th Street, Cleveland 4, Ohio.

Associate of The Cleveland Worm & Gear Company, Industrial Gearing. In Canada: Peacock Brothers Limited.



DUALINE MEASURING VALVE IS HEART OF FARVAL SYSTEM

1. It forces a measured charge of clean oil or grease from central pumping unit to each bearing, as frequently as desired.
2. Tell-tale indicators signal delivery of correct amount of lubricant to every bearing.
3. It safeguards against over-lubrication and eliminates waste—lubricant consumption reduced as much as 75%.
4. It saves skilled labor. Untrained help can operate Farval system after brief instruction.
5. It is simple, sure, foolproof. No springs, no ball-checks, no pinhole parts, nothing to get out of order.

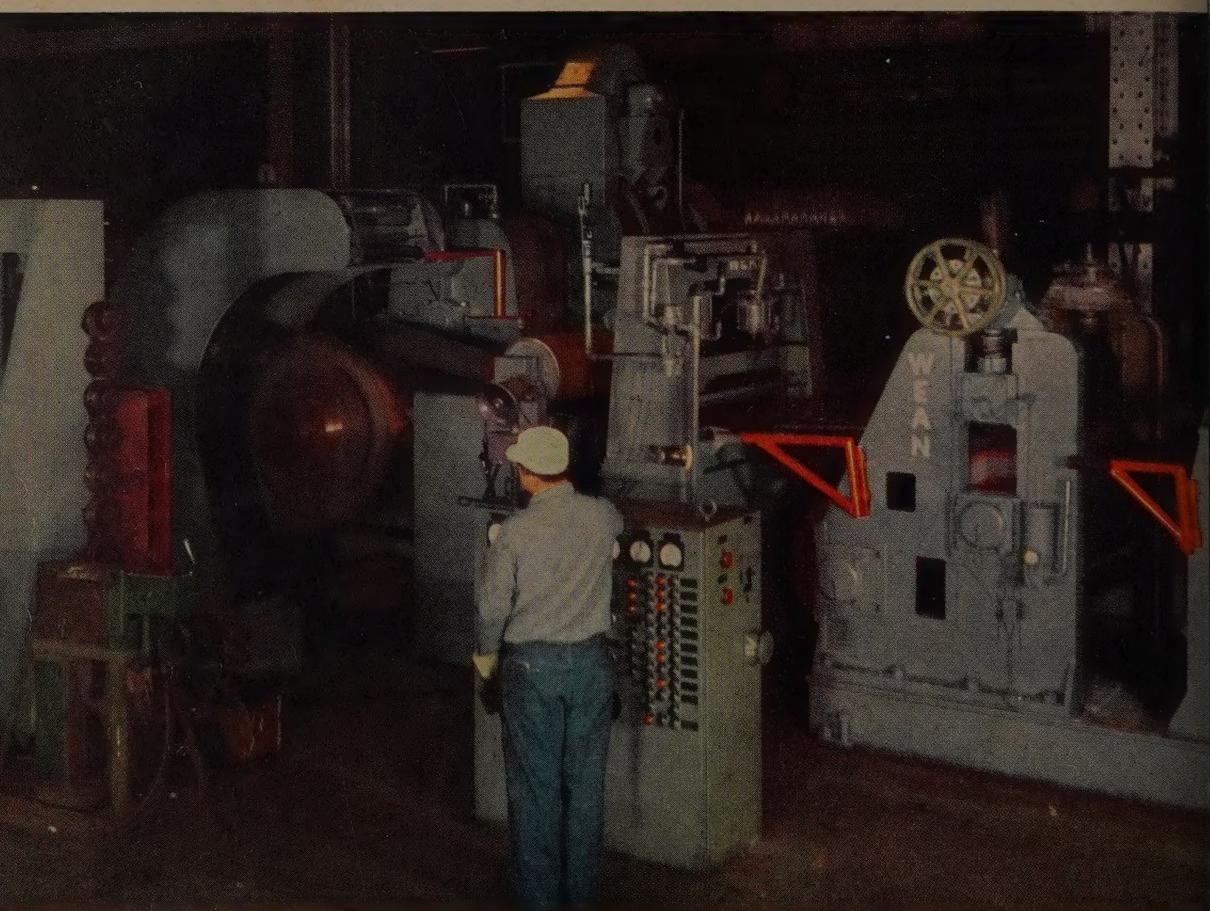
FARVAL—Studies in Centralized Lubrication

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HIGH SPEED
ELECTROLYTIC
CLEANING LINE



SINCE the advent of modern electrolytic tin plate lines Wean has maintained leadership in the development and manufacture of faster, more efficient equipment.

Shown here is the latest in electrolytic cleaning lines. This equipment prepares the steel for subsequent coating operations at speeds heretofore considered unobtainable.

Leading users of tin plate equipment have learned that it's wise to confer with Wean engineers when planning improvements or expansion, for when it comes to experience Wean has long been one of the world's leading firms specializing in sheet, tin and strip mill equipment.

